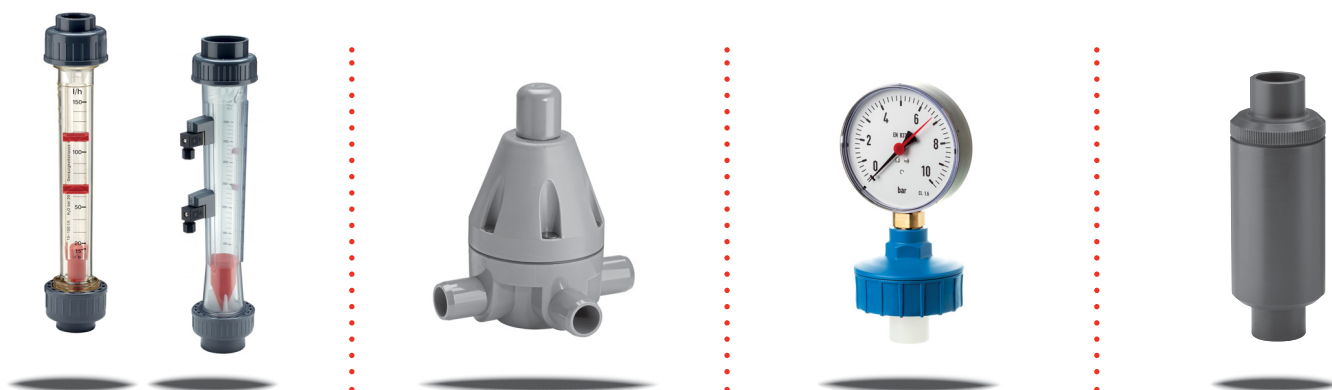




Thermoplastic Valve Solutions



Instrumentación en termoplástico
Thermoplastic instrumentation



Thermoplastic Valve Solutions

SAFI LIMITED

PO BOX N°3752
Lake Wales - FL 33859
USA
Toll free 888 638 2838
inquiries@safi-valves.com

SAFI IDF - CENTRE

ZAE du Chemin Vert
95340 Persan
FRANCE
Tél. +33 (0) 1 34 70 98 87
Fax +33 (0) 1 39 37 01 02
safi-idf@safi-valves.com

SAFI NORD

232 avenue Becquart
59130 Lambersart
FRANCE
Tél. +33 (0) 3 20 09 35 16
Fax +33 (0) 3 20 93 08 17
safi-nord@safi-valves.com

SAFI LIMITED

35 Holton Road
Holton Heath Trading Park
Poole Dorset - BH16 6LT
UNITED KINGDOM
Ph. +44 (0) 12 02 624 618
Fax +44 (0) 12 02 628 500
sales@safi-valves.com

SAFI DEUTSCHLAND

Kunststoffarmaturen-Vertriebs-GmbH
Jahnstrasse 29
D-64319 Pfungstadt
DEUTSCHLAND
Tel. +49 (0) 6157 8 19 19
Tel. +49 (0) 6157 8 20 24
Fax +49 (0) 6157 8 20 25
safi-d@t-online.de

SAFI AMERICA

Las Garzas Trade Center
Las Garzas #950, galpón B
Quilicura Santiago
CHILE
Fono +56 2 2510 3500
Fax +56 2 2510 3507
info@safi-america.com

SAFI FÁBRICA DE VÁLVULAS

C/ Carboners, 35
Pol. Ind. La Cometa
43700 El Vendrell
ESPAÑA (Tarragona)
Tel. +34 977 665 147
Fax +34 977 664 989
info@safi-valvulas.com

SAFI FRANCE

Usine et siège social
26770 Taulignan
FRANCE
Tél. +33 (0) 4 75 53 56 29
Fax +33 (0) 4 75 53 62 78
www.safi-valves.com
info@safi-valves.com



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Thermoplastic Valve Solutions

Presentación de la empresa

About us

SAFI es un fabricante francés de válvulas plásticas de altas prestaciones y ofrece sus servicios a clientes de todo el Mundo. Nuestras soluciones técnicas son utilizadas en entornos de alta exigencia tales como la química, la industria farmacéutica, la química nuclear y en las industrias mineras también se utilizan para el transporte y almacenamiento de fluidos, para la agricultura y el tratamiento de aguas y efluentes. Ofrecemos una amplia gama de válvulas, también en los proyectos aportamos nuestra asesoría desde el diseño hasta la instalación de los productos.

Nuestra experiencia maximiza tanto la seguridad como en el rendimiento

Desde hace 50 años **SAFI** es una empresa que diseña, fabrica y suministra válvulas anticorrosivas de materiales termoplásticos especialmente diseñadas para aplicaciones industriales: Válvulas de bola, de mariposa o de membrana hechas de materiales resistentes a líquidos corrosivos, peligrosos o tóxicos (**PPH/PPAS/PPVF, PVDF, PVC, HDPE, PA**)...

La amplia gama de productos, ha hecho que SAFI sea la empresa líder en Francia en válvulas plásticas de tipo industrial

SAFI is a French manufacturer of high-performance plastic valves that provides customer support world-wide. Our solutions are used in demanding environments, such as the chemical, pharmaceutical, nuclear chemistry and mining industries, and also for the transporting and storage of fluids, agriculture and the treatment of both water and effluents.

We offer a comprehensive range of valves, and we can also provide assistance for highly complex projects, from the design phase up to on-site installation.

Our experience enhances both safety and your performance.

For 50 years, SAFI has been designing, manufacturing and selling valves in anti-corrosion thermoplastic materials, specifically designed for industrial applications:

Ball valves, butterfly valves or diaphragm valves made of materials that resist corrosive, dangerous or toxic fluids (**PPH/PPATEX/GRPP, PVDF, PVC, PE, PA**), etc.

SAFI's broad range of products and materials has made it the French reference in the field of industrial plastic valves.



Pulverización agrícola
Crop spraying

Tratamiento de aguas
Water treatment



Nuestras referencias son:

- › **Industrias químicas** : Arkema, Solvay, BASF, Rhodia, Arcelor Mittal, Isochem...
- › **Transporte y almacenamiento de líquidos** : Allibert, Promens, Brenntag...
- › **Energía/Minería**: Areva, Anglo American, EDF, Honeywell, Codelco, Outotec, Antofagasta minerals, BHP Billiton...
- › **Pulverización agrícola** : Kuhn Blanchard, John Deere, Groupe Exel Industries (Caruelle, Berthoud, Hardi-Evrard, Tecnomat, Matrot) ...
- › **Industria naval y yates** : Sunseeker, Royal Navy, Palmer Johnson...
- › **Tratamiento de aguas** : Suez Environnement, Degrémont, Ondéo, Véolia Water, OTV...

Valores básicos :
desarrollo y proximidad

Nuestra estructura permite adaptarnos a las necesidades de nuestros clientes y ofrecer los productos más adecuados en cada situación. La unión entre nuestro departamento técnico-comercial y el departamento de I+D hace que podamos trabajar en alianza con nuestros clientes y así cumplir con sus necesidades.

Our references include:

- › **Chemical industry**: Arkema, Solvay, BASF, Rhodia, Arcelor Mittal, Isochem...
- › **Fluids storage and transport**: Allibert, Promens, Brenntag...
- › **Energy/mining**: Areva, Anglo-American, EDF, Honeywell, Codelco, Outotec, Antofagasta minerals, BHP Billiton...
- › **Crop spraying**: Kuhn Blanchard, John Deere, Exel Industries group (Caruelle, Berthoud, Hardi-Evrard, Tecnomat, Matrot) ...
- › **Marine and Yacht industry**: Sunseeker, Royal Navy, Palmer Johnson...
- › **Water treatment**: Suez Environnement, Degrémont, Ondéo, Véolia Water, OTV...

Core values:
partnership and support

We are committed to meet our customers' expectation, and we often offer customized products that will fully meet their requirements. Our sales force and R&D department work closely with our customers to meet the requirements of the most demanding specifications.

Fecha de creación de las filiales

Date of creation of subsidiaries



1963

SAFI



1974

SAFI Ltd



1979

SAFI
Deutschland



2007

SAFI
USA



2008

SAFI
America



2009

SAFI
Fabrica



Almacenamiento y transporte
Storage and transport

Industria química
Chemical industry



Normas y certificaciones

Standards and approvals

PED 97/23/CE y 2014/68/EU

- Las válvulas SAFI cumplen con la Directiva de Equipos a Presión, artículo 3 párr.3 (no marcado CE) en la Categoría II.



PED 97/23/CE & 2014/68/EU

- SAFI valves meet the requirements of the Pressure Equipment Directive, from article 3 para. 3 (no CE marking) to Category II.

Agua potable-ACS

- Certificado de Confirmidad Sanitaria N°10t tipo de ACC LY129 dada por el laboratorio de Salud Entorno Higiene de Lyon, que permite usar las válvulas de SAFI para la producción de agua potable en instalaciones de tratamiento y distribución, en conformidad con la Ley modificada del 29 de Mayo 1997 y la circular DGS/SD7 2002 n° 571 del 25 Noviembre 2002..



Drinking water - ACS

- Health Compliance Certificate (ACS) N° 10 ACC LY129, issued by the laboratory Santé Environnement Hygiène de Lyon, allows approved SAFI valves to be used in fixed human drinking water production, treatment and distribution systems, in accordance with the amended Act of 29th May 1997 and circular DGS/SD7 2002 N° 571 of 25th November 2002.

Emisiones fugitivas

- Las válvulas de SAFI cumplen con la norma EN ISO 15848-1 : 2006 (clase B) y el estándar Alemán TA-Luft VDI 2440 : 2002, que define criterios de fugas al exterior para sistemas estancos..

Unintentional emissions (leaks)

- Approved SAFI valves meet the requirements of EN ISO standard 15848-1: 2006 (class B) and German standard TA-Luft VDI 2440: 2002, that define external leak criteria for leaktight systems.

Aprobación Naval n° 14276 BO/BV Bureau Veritas

- Las válvulas SAFI pueden ser utilizadas en los barcos con casco de acero y en los yates de recreo.



Marine approval N° 14276 BO/BV Bureau Veritas

- Approved SAFI valves and hull penetrations may be used in the "steel ship" and "yacht" categories.

ATEX II 2 G/D

- Las válvulas compactas con bridas se fabrican usando materiales antiestáticos cumpliendo con la normativa ATEX 94/9/CE. Las válvulas están homologadas para utilizarse en industrias de superficie en el grupo 2 y las categorías 2G y 2D (riesgo ocasional en peligro con la presencia de gas o polvo). Las zonas en que se puede utilizar son: 1, 2, 21, 22.



ATEX II 2 G/D

- Flanged valves are manufactured using anti-static materials and meet the mandatory safety requirements of directive ATEX 94/9/EC. The valves are approved for utilisation in surface industry: group II and in categories 2G and 2D (occasional or intermittent hazard in the presence of gas or dust). Utilisation zones are: 1, 2, 21, 22.

Alimentario

- Las válvulas SAFI cumplen con las normas del reglamento NO 10/2011 del 14 de Enero del 2011, relacionado con los materiales plásticos y objetos que están en contacto con los productos alimentarios.

Food grade

- Approved SAFI valves meet the requirements of regulation N° 10/2011 of 14th January 2011 relating to plastic materials and objects intended to come into contact with foodstuffs.

Flow meter M123

FACTS | FIGURES | DATA



Flow meter M123

Flow meter M123

Measuring ranges 1.5 - 1,000 l/h



M 123 PVDF

M 123 PSU

M 123 PVC

FUNCTION

The M123 flow meter works on the float principle and is used to measure the flow rate in closed pipelines. The medium flows through the vertically installed flow meter from bottom to top. This raises the float and shows the current flow rate on the scale on the measuring device. The read-off edge corresponds to the largest diameter of the float.

The M123 flow meters have a water scale and 2 setpoint indicators as standard.

SPECIAL FEATURES

- Fracture-proof and corrosion-resistant
- Radially removable
- Adhesive special scales, for liquid and gaseous media
- Holder for accessories (limit value contacts)
- Measuring tube carries the DN label, and also the measuring range and material
- PVDF floats and stops as standard
- Measuring ranges 1.5-1,000 l/h
- Less space required thanks to short overall length
- Operating pressure PN 10 at 20 °C

MATERIALS

Measuring tube	Float	Insert, top and bottom	O-ring
PVC	PVDF	PVDF	EPDM (standard), FPM (optional)
PSU	PVDF	PVDF	EPDM (standard), FPM (optional)
PVDF	PVDF	PVDF	FPM (standard)

CONNECTION POSSIBILITIES

Socket	Spigot	Plastic female thread	Metal female thread
PVC adhesive socket (standard)	PP fusion socket	PVC	Stainless steel V4A
PP fusion spigot	PVDF fusion spigot	PP	Malleable cast iron
PVDF fusion socket	PE fusion spigot	PVDF	

PRESSURE LOSS

Measuring range l/h	1.5-15	2.5-25	5-50	10-100	8-80	15-150	20-200	15-150	30-300	50-500	100-1,000
Pressure loss mm WS	46.0	46.0	46.0	46.0	44.7	44.7	44.7	82.8	82.8	82.8	82.8
Measuring range l/h	1.5-15	2.5-25	5-50	10-100	8-80	15-150	20-200	15-150	30-300	50-500	100-1,000
Pressure loss mbar	4.6	4.6	4.6	4.6	4.47	4.47	4.47	8.28	8.28	8.28	8.28

Operating pressure: max. PN 10 at 20 °C

MEASURING ACCURACY

Accuracy Class 4 as defined by VDE/DIN 3513 page 2

Flow in %	10	20	30	40	50	60	70	80	90	100
Total measured value error in %	13.00	8.00	6.33	5.50	5.00	4.67	4.43	4.25	4.11	4.00
Total limit value error in %	1.3	1.6	1.9	2.2	2.5	2.9	3.1	3.4	3.7	4.0

FLOAT-TYPE FLOW METER

d	DN	Measuring range H ₂ O	M 123
16	10	1.5-15	■ ●
16	10	2.5-25	■ ● ▲
16	10	5-50	■ ● ▲
16	10	10-100	■ ● ▲
20	15	8-80	■ ● ▲
20	15	15-150	■ ● ▲
20	15	20-200	■ ● ▲
32	25	15-150	■ ● ▲
32	25	30-300	■ ● ▲
32	25	50-500	■ ● ▲
32	25	100-1,000	■ ● ▲

Key to symbols: ■ PSU (Polysulphone), ● PVC, ▲ PVDF

TEMPERATURE RANGE

Measuring tube	Screw connection	Max. temp. at 1 bar
PVC-U	PVC-U	0-60 °C
PA	PVC-U	0-60 °C
PSU	PVC-U	0-60 °C
PSU	PVDF	0-90 °C
PVDF	PVDF	0-100 °C

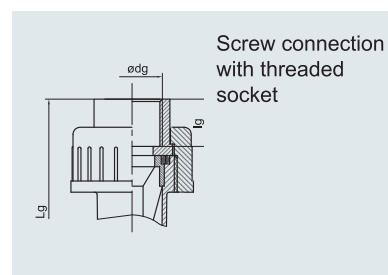
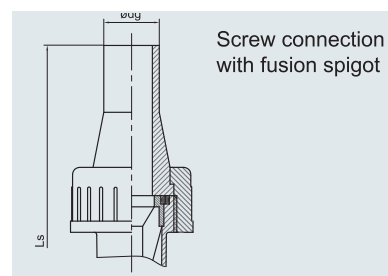
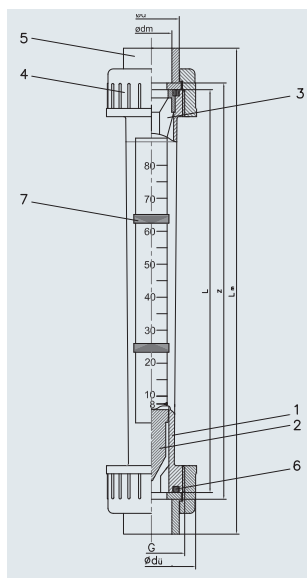
Flow meter M123

ARTICLE NUMBERS

Measuring tube			PVC		PSU		PVDF	
d	DN	Measuring range l/h	Float PVDF Art.-No.	Float PVDF/Magnet Art.-No.	Float PVDF Art.-No.	Float PVDF/Magnet Art.-No.	Float PVDF Art.-No.	Float PVDF/Magnet Art.-No.
16	10	1.5 - 15	17.003.700	17.003.711	17.000.862	17.001.459		
16	10	2.5 - 25	17.003.701	17.003.712	17.000.864	17.001.461	17.003.611	17.003.622
16	10	5 - 50	17.003.702	17.003.713	17.000.866	17.001.463	17.003.612	17.003.623
16	10	10 - 100	17.003.703	17.003.714	17.000.868	17.001.465	17.003.613	17.003.624
20	15	8 - 80	17.003.704	17.003.715	17.000.895	17.001.467	17.003.614	17.003.625
20	15	15 - 150	17.003.705	17.003.716	17.000.897	17.001.469	17.003.615	17.003.626
20	15	20 - 200	17.003.706	17.003.717	17.000.899	17.001.471	17.003.616	17.003.627
32	25	15 - 150	17.003.707	17.003.718	17.000.901	17.001.473	17.003.617	17.003.628
32	25	30 - 300	17.003.708	17.003.719	17.000.903	17.001.475	17.003.618	17.003.629
32	25	50 - 500	17.003.709	17.003.720	17.000.905	17.001.477	17.003.619	17.003.630
32	25	100 - 1,000	17.003.710	17.003.721	17.000.907	17.001.479	17.003.620	17.003.631

INDIVIDUAL PARTS

Pos.	Designation	Material
1	Measuring tube	PSU, PVC, PVDF
2	Float	PVDF
3	Insert, top	PVDF
4	Union cut	PVC, PP, PVDF
5	Insertion part	PVC, PP, PVDF
6	O-ring	EPDM, FPM
7	Setpoint indicator	PS </td



DIMENSIONS (in mm)

Measuring range l/hH ₂ O						Adhesive socket			Fusion socket			Spigot PP			Threaded socket		
	d	DN	G	d _u	L	d _m	z	L _m	d _m	z	L _m	d	L _g	S	d	L _g	I _g
1.5 - 15	16	10	3/4"	35	165	16	171	199	15.5	175	201				3/8"	199	11
2.5 - 25																	
5 - 50																	
10 - 100																	
8 - 80	20	15	1"	20	191	20	191	223	19.5	195	223	20	293	1.9	1/2"	223	13
15 - 150																	
20 - 200																	
15 - 150	32	25	1 1/2"	60	200	36	206	250	31.5	210	246	32	320	3.0	1"	250	17
30 - 300																	
50 - 500																	
100 - 1,000																	

SPECIAL SCALES

Measuring range	Air 0 bar		Air 1 bar		Air 2 bar		Air 3 bar	
H ₂ O l/h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h
1.5 - 15	00.000.998	0.10 - 0.55	00.001.050	0.15 - 0.80	00.001.051	0.17 - 0.9	00.001.052	0.20 - 1.1
2.5 - 25	00.001.059	0.2 - 0.95	00.001.060	0.25 - 1.3	00.001.061	0.3 - 1.6	00.001.062	0.4 - 1.9
5 - 50	00.001.070	0.5 - 1.9	00.001.071	0.7 - 2.7	00.001.072	0.8 - 3.4	00.001.073	1.0 - 3.8
10 - 100	00.001.081	0.8 - 3.0	00.001.082	1.0 - 4.2	00.001.083	1.2 - 5.4	00.001.084	1.4 - 6.4
8 - 80	00.001.092	0.6 - 2.8	00.001.093	0.8 - 4	00.001.094	1.0 - 5.0	00.001.095	1.2 - 5.6
15 - 150	00.001.103	1.4 - 5.6	00.001.104	2 - 8	00.001.105	2 - 10	00.001.106	3 - 12
20 - 200	00.001.114	1.5 - 7.0	00.001.115	2 - 10	00.001.116	3 - 13	00.001.117	3 - 15
15 - 150	00.001.125	1.0 - 6.5	00.001.126	1 - 90	00.001.127	1.5 - 11	00.001.128	2 - 13
30 - 300	00.001.136	1.5 - 11	00.001.137	2 - 15	00.001.138	2.5 - 18	00.001.139	3 - 22
50 - 500	00.001.147	3 - 18	00.001.148	4 - 25	00.001.149	5 - 30	00.001.150	5 - 35
100 - 1,000	00.001.158	6 - 30	00.001.159	8 - 44	00.001.160	10 - 54	00.001.161	12 - 62

Measuring range	Air 4 bar		Air 5 bar		Air 6 bar		Air 7 bar	
H ₂ O l/h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h
1.5 - 15	00.001.053	0.25 - 1.20	00.001.054	0.25 - 1.3	00.000.999	0.26 - 1.45	00.001.055	0.30 - 1.5
2.5 - 25	00.001.063	0.4 - 2.1	00.001.064	0.5 - 2.4	00.001.065	0.5 - 2.5	00.001.066	0.5 - 2.7
5 - 50	00.001.074	1.2 - 4.2	00.001.075	1.2 - 4.6	00.001.076	1.2 - 5.0	00.001.077	1.4 - 5.4
10 - 100	00.001.085	1.6 - 7.0	00.001.086	1.6 - 7.4	00.001.087	2.0 - 8.0	00.001.088	2 - 8.8
8 - 80	00.001.096	1.4 - 6.4	00.001.097	1.4 - 7.0	00.001.098	1.5 - 7.5	00.001.099	1.5 - 8.0
15 - 150	00.001.107	3 - 13	00.001.108	3 - 14	00.001.109	3.5 - 15	00.001.110	3.5 - 16.5
20 - 200	00.001.118	4 - 17	00.001.119	4 - 18	00.001.120	4 - 20	00.001.121	5 - 21
15 - 150	00.001.129	2 - 14.5	00.001.130	2 - 16	00.001.131	2 - 17	00.001.132	2.5 - 18
30 - 300	00.001.140	3 - 24	00.001.141	4 - 26	00.001.142	4 - 28	00.001.143	4 - 30
50 - 500	00.001.151	6 - 40	00.001.152	6 - 44	00.001.153	8 - 48	00.001.154	8 - 50
100 - 1,000	00.001.162	12 - 70	00.001.163	15 - 75	00.001.164	15 - 80	00.001.165	15 - 85

Measuring range	Air 8 bar		Air 9 bar		Air 10 bar	
H ₂ O l/h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h
1.5 - 15	00.001.056	0.3 - 1.6	00.001.057	0.3 - 1.7	00.001.058	0.35 - 1.8
2.5 - 25	00.001.067	0.6 - 2.9	00.001.068	0.6 - 3.0	00.001.069	0.6 - 3.2
5 - 50	00.001.078	1.4 - 5.8	00.001.079	1.6 - 6.0	00.001.080	1.6 - 6.4
10 - 100	00.001.089	2.0 - 9.0	00.001.090	2 - 10	00.001.091	2 - 10
8 - 80	00.001.100	1.5 - 8.5	00.001.101	2.0 - 9.0	00.001.102	2.0 - 9.5
15 - 150	00.001.111	4 - 17	00.001.112	4 - 18	00.001.113	4 - 19
20 - 200	00.001.122	5 - 23	00.001.123	5 - 23	00.001.124	5 - 25
15 - 150	00.001.133	2.5 - 19.5	00.001.134	3 - 20	00.001.135	3 - 21
30 - 300	00.001.144	4 - 33	00.001.145	5 - 34	00.001.146	5 - 35
50 - 500	00.001.155	8 - 54	00.001.156	8 - 56	00.001.157	10 - 60
100 - 1,000	00.001.166	20 - 90	00.001.167	20 - 95	00.001.168	20 - 100

Flow meter M123

SPECIAL SCALES

Measuring range	HCl 30-33 % (PSU)		NaOH 30 %		NaOH 50 %	
H ₂ O l/h	Art.-No.	l/h	Art.-No.	l/h	Art.-No.	l/h
1.5 - 15	00.005.117	1 - 10	00.005.144	0.1 - 2.0	–	–
2.5 - 25	00.005.118	2.5 - 20	00.005.145	0.2 - 5	–	–
5 - 50	00.005.119	5 - 40	00.005.128	1 - 14	–	–
10 - 100	00.005.120	10 - 85	00.005.129	3 - 35	–	–
8 - 80	00.005.121	8 - 70	00.005.130	2 - 23	00.005.137	0.2 - 3.5
15 - 150	00.005.122	15 - 125	00.005.131	3 - 55	00.005.138	0.5 - 10
20 - 200	00.005.123	20 - 170	00.005.132	5 - 80	00.005.139	0.5 - 16
15 - 150	00.005.124	5 - 125	00.005.133	3 - 55	00.005.140	0.5 - 11
30 - 300	00.005.125	30 - 260	00.005.134	6 - 130	00.005.141	1 - 33
50 - 500	00.005.126	50 - 425	00.005.135	10 - 250	00.005.142	2 - 80
100 - 1,000	00.005.127	100 - 850	00.005.136	40 - 600	00.005.143	10 - 220

Special scales as requested by the customer

Details required: Medium, spec. weight in g/cm³, viscosity in cP or mPas, operating temperature in °C, desired measuring range in l/h.

Application instructions for special scales

When applying special scales later, ensure that the marking ◀ on the scale corresponds with the one on the measuring tube.

ACCESSORIES

Limit value contact Z 40 min.

Limit value contact Z 42 max.

INSTALLATION AND ASSEMBLY INSTRUCTIONS

- Install the flow meter into the pipeline system vertically and without tension.
- Provide an inlet and outlet section Inlet approx. 10 x DN, outlet approx. 5 x DN.

NOTES ON OPERATION

- Avoid pressure surges, as these can damage the unit.
- Exercise caution when installing. The measuring tube must not come into contact with solvent.
- Before start-up, make sure that the connected parts are sufficiently tightened.
- The union nuts must not be mixed up on a measuring tube made from the material PVDF. The overall length also does not correspond to the dimensions table.

We reserve the right to make technical changes in the interest of improvement.

SPECIAL SCALES H₂O WITH OTHER UNITS OF MEASUREMENT

Measuring range Series M 123

d	DN	l/h	Art.-No.	USGPM
16	10	1.5 - 15	00.000.959	0.006 - 0.066
16	10	2.5 - 25	00.000.961	0.01 - 0.11
16	10	5 - 50	00.000.962	0.02 - 0.22
16	10	10 - 100	00.000.963	0.04 - 0.44
20	15	8 - 80	00.000.964	0.035 - 0.35
20	15	15 - 150	00.000.965	0.06 - 0.66
20	15	20 - 200	00.000.966	0.08 - 0.8
32	25	15 - 150	00.000.967	0.06 - 0.66
32	25	30 - 300	00.000.968	0.13 - 1.3
32	25	50 - 500	00.000.969	0.22 - 2.2
32	25	100 - 1,000	00.000.970	0.44 - 4.4

PRESSURE CORE TABLE FOR GASES: CALIBRATION PRESSURE 0 BAR

Operating pressure in bar	Factor x display value	Operating pressure in bar	Factor x display value
0.0	1.000	3.0	2.000
0.2	1.095	4.0	2.240
0.4	1.184	5.0	2.450
0.6	1.265	6.0	2.650
0.8	1.340	7.0	2.830
1.0	1.414	8.0	3.000
1.5	1.580	9.0	3.165
2.0	1.730	10.0	3.320

Limit value contact

Z 40 min./Z 42 max.

For float-type
flow meters

M 335/M 350/M 123/ M23 PVDF



USE

The limit value contacts Z 40 and Z 42 are used for external monitoring of limited flow values on our (float-type) flow meters. They are pushed onto the guide rod located on the flow meter and can be adjusted to any desired value on the corresponding scale.

FUNCTION

A solenoid installed in the float closes or opens a reed contact permanently cast in the limit value contact. The switching function is bistable. This means that the switching state is maintained even if the solenoid float moves away from the contact.

SWITCHING STATES

	Float above	Float below
Z 40 min	open	closed
Z 42 max	closed	open

Attention

When retrofitting the flow meter with limit value contacts, ensure that the standard float is replaced with a solenoid float. The solenoid float is clearly identified by an "M" on the top.

ORDER NUMBERS

Z 40 min.	17.100.686
Z 42 max.	17.100.687

TECHNICAL DATA

Switching voltage*	max. 230 V~
Switching rating*	max. 10 W/12 VA
Switching current*	max. 0.5 A
Contact resistance	< 200 mOhm
Leakage resistance	> 1011 Ohm
Permissible ambient temperature	0 to +55°C
Protection type in acc.	with DIN 40050-IP 65
Switching hysteresis	1-2 mm float travel

We reserve the right to make technical changes in the interest of improvement.

* Even a brief overshoot is not permitted. This is uncontrollable with inductive or capacitive peaks, e.g. with contactors or solenoid valves. It is therefore recommended to use a limit value switch or a contact protection relay.

Flow meter M335-M350

FACTS | FIGURES | DATA



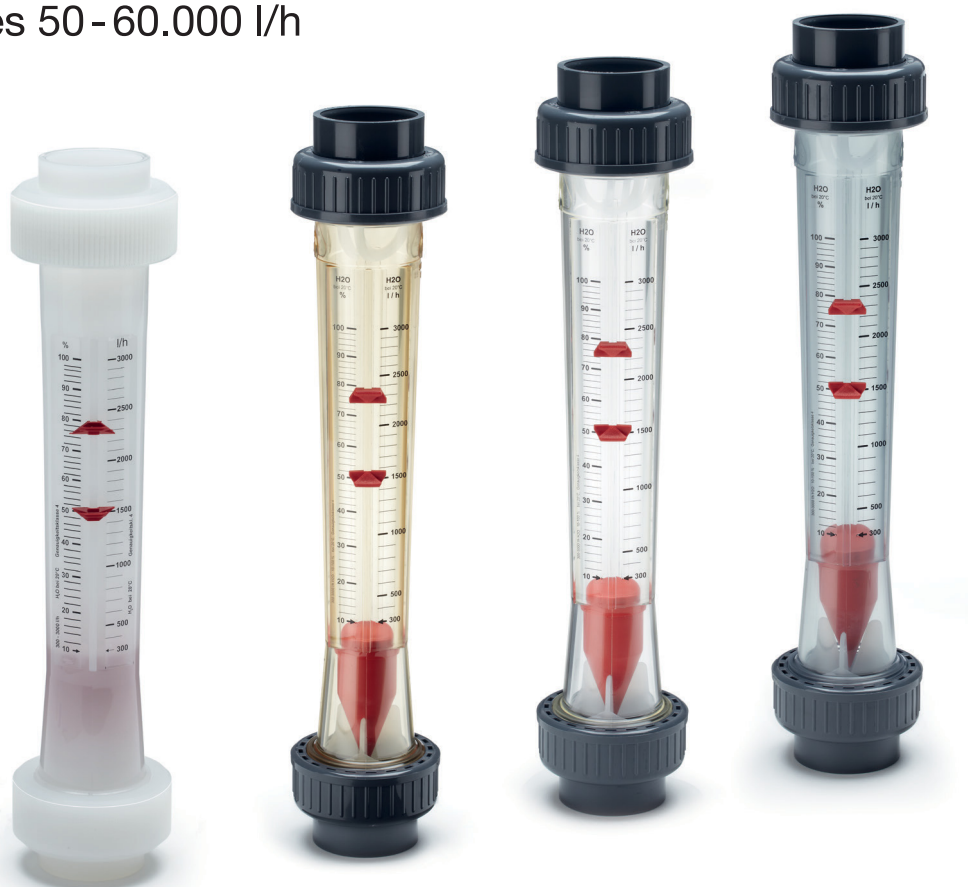
Thermoplastic Valve Solutions



Flow meter M335-M350

Flow meter M335 · M350

Measuring ranges 50 - 60.000 l/h



M23 PVDF

M335/M350 PSU

M335/M350 PA

M335/M350 PVC

FUNCTION

The M335/M350 flow meter operates on the float principle and is used for flow rate measurements in closed pipelines. The medium flows through the vertically installed flow meter from bottom to top. This raises the float and shows the current flow rate on the scale on the measuring device. The read-off edge corresponds to the largest diameter of the float.

The M335/M350 flow meters come as standard with a water scale and a % scale, and two setpoint indicators.

SPECIAL FEATURES

- Fracture-proof and corrosion-resistant
- Radially removable
- Special adhesive scales for liquid and gaseous media
- Holder for accessories (limit value contacts)
- Measuring tube carries the DN label, and also the measuring range and material
- PVDF floats and stops as standard
- Measuring ranges 50-60.000 l/h
- Operating pressure PN 10 bar at 20 °C

MATERIALS

Measuring tube	Float	Top and bottom inserts	O-ring
PA	PVDF (standard)	PVDF	EPDM (standard), FPM (optional)
PVC	PVDF (standard)	PVDF	EPDM (standard), FPM (optional)
PSU	PVDF (standard)	PVDF	EPDM (standard), FPM (optional)

CONNECTION POSSIBILITIES

Socket	Spigot	Plastic female thread	Metal female thread
PVC adhesive socket (standard)	PP fusion spigot	PVC	Stainless steel V4A
PP fusion socket	PVDF fusion spigot	PP	Malleable cast iron
PVDF fusion socket	PE fusion spigot	PVDF	

PRESSURE LOSS

Measuring range l/h	50-500	100-1,000	150-1,500	250-2,500	200-2,000	300-3,000
Pressure loss mbar	22.84	22.84	22.84	22.84	24.99	24.99
Measuring range l/h	600-6,000	1,000-10,000	1,500-15,000	2,000-20,000	3,000-30,000	8,000-60,000
Pressure loss mbar	24.99	24.99	28.23	45.67	45.67	47.24

MEASURING ACCURACY

Accuracy Class 4 as defined by VDE/DIN 3513 page 2

Flow in %	10	20	30	40	50	60	70	80	90	100
Total measured value error in %	13.00	8.00	6.33	5.50	5.00	4.67	4.43	4.25	4.11	4.00
Total limit value error in %	1.3	1.6	1.9	2.2	2.5	2.9	3.1	3.4	3.7	4.0

FLOAT TYPE FLOW METER

d	DN	Measuring range H ₂ O l/h	M335 / M350	M23
32	25	50-500	▲ ■ ●	◆
32	25	100-1,000	▲ ■ ●	◆
40	32	150-1,500	▲ ■ ●	
40	32	250-2,500	▲ ■ ●	
50	40	200-2,000	▲ ■ ●	◆
50	40	300-3,000	▲ ■ ●	◆
50	40	600-6,000	▲ ■ ●	
63	50	600-6,000	▲ ■ ●	◆
63	50	1,000-10,000	▲ ■ ●	◆ (1,200-12,000 l/h)
63	50	1,500-15,000	▲ ■ ●	
75	65	2,000-20,000	▲ ■ ●	◆
75	65	3,000-30,000	▲ ■ ●	◆
75	65	8,000-60,000	▲ ■ ●	

Key to symbols:

▲ PA (polyamide Trogamid), ■ PSU (polysulphone), ● PVC, ◆ PVDF

TEMPERATURE RANGE

Measuring tube	Screw connection	Max. temp. at 1 bar
PVC-U	PVC-U	0-60 °C
PA	PVC-U	0-60 °C
PSU	PVC-U	0-60 °C
PSU	PVDF	0-90 °C
PVDF	PVDF	0-100 °C

Flow meter M335-M350

CHEMICAL RESISTANCE OF (FLOAT-TYPE) FLOW METERS

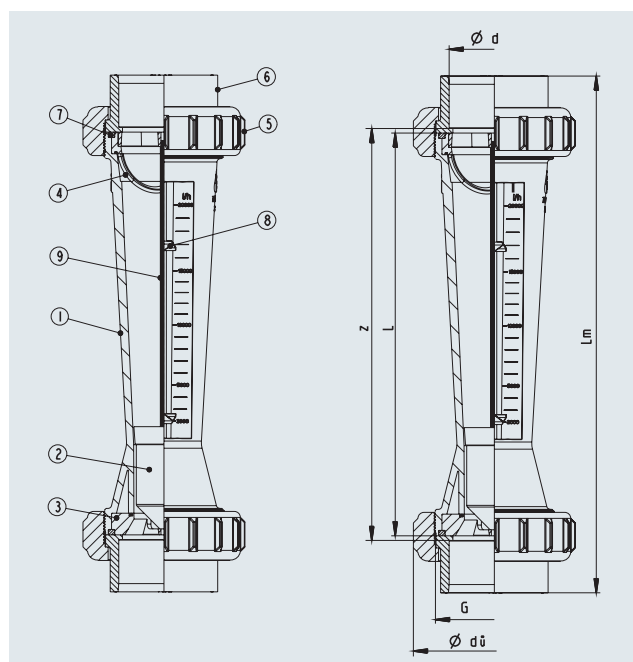
	Chemical	Formula	Concentration	Measuring tube material				Guide rod
				PVC-U	PA	PSU	PVDF	PVDF/Va
Acid	Phosphoric acid	H ₃ PO ₄	75 %	x	O	x	x	x
	Sulphuric acid	H ₂ SO ₄	< 90 %	x	–	–	x	x
	Nitric acid	HNO ₃	< 55 %	x	–	–	x	x
	Nitric acid	HNO ₃	67 %	–	–	–	x	x
	Hydrofluoric acid	HF	< 70 %	x	–	–	x	x
	Hydrochloric acid	HCl	36 %	x	–	x	x	x
Alkali	Ammonia	NH ₄ OH	25 %	x	x	x	–	–
	Potash	KOH	< 50 %	x	O	x	–	–
	Caustic soda	NaOH	< 40 %	x	O	x	–	–
Inorganic	Ferric chloride	FeCl ₃		x	x	x	x	x
	Chlorine bleaching	NaOCl	15 %	x	x	x	–	–
	Sodium bisulphite	NaHSO ₃	< 40 %	x	x	x	x	x
	Hydrogen peroxide	H ₂ O ₂	35 %	x	–	x	O	O
	Aqueous inorganic saline solutions (non-oxidising)	to saturation		x	x	x	x	x
Organic	Formic acid	HCOOH	85 %	O	–	O	O	O
	Acetic acid	CH ₃ COOH	85 %	O	–	O	O	O
	Formaldehyde	H ₂ CO	< 40 %	x	–	x	O	O
	Glycol		< 50 %	O	–	x	x	x
	Acetone		pure		O	–	O	O
	Ethanol, methanol		pure	O	–	x	x	x
	Aliphatic hydrocarbons		pure	O	x	x	x	x

Other concentrations and media available on request X=recommended, O=conditionally recommended, – = not recommended

INDIVIDUAL PARTS

Pos.	Designation	Qty.	Materials
1	Measuring tube	1	PA, PVC, PSU, (PVDF, only M23)
2	Float	1	PVDF
3	Insert, bottom	1	PVDF
4	Insert, top	1	PVDF
5	Union nut	2	PVC, PP, PVDF
6	Insertion part (socket, spigot)	2	PVC, PP, PVDF
7	O-ring	2	EPDM, FPM
8	Setpoint indicator	2	PS
9	Guide rod*	1	PVDF/Va

*from DN 50 1,500-15,000 l/h

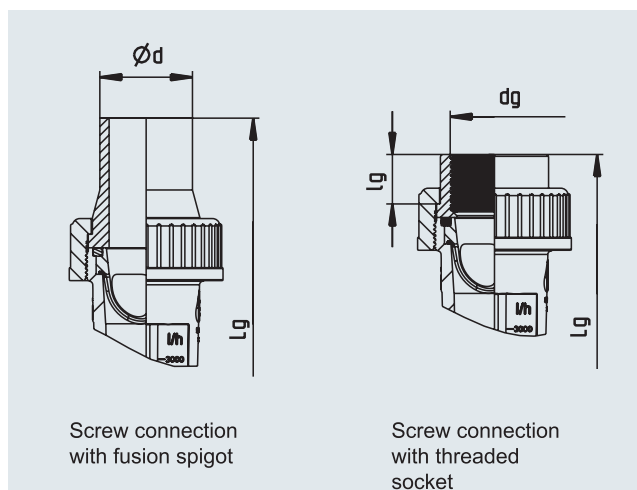


M 350 DIMENSIONS

Dimensions in mm																		
Measuring range l/hH ₂ O	Adhesive socket						Fusion socket			Spigot PP			Spigot PVDF			Threaded socket		
	d	DN	G	d _u	L		d _m	z	L _m	d _m	z	L _m	d	L _g	S SDR 11	d	L _g	S SDR 33
50-500	32	25	1 1/2"	60	335		32	341	385	32	345	381	32	455	2.9	32	443	2.4
100-1,000																		
150-1,500	40	32	2"	72	335		40	341	393	40	345	385	40	461	3.7	40	461	2.4
250-2,500																		
200-2,000	50	40	2 1/4"	83	335		50	341	403	50	345	391	50	467	4.6	50	459	3
300-3,000																		
600-6,000	63	50	2 3/4"	103	335		63	341	417	63	345	399	63	473	5.8	63	461	3
1,000-10,000																		
1,500-15,000																		
2,000-20,000	75	65	3 1/2"	122	335		75	341	429	75	345	407	75	587	6.9	75	453	3.6
3,000-30,000																		
8,000-60,000																		

M 350 DIMENSIONS

Dimensions in mm																		
Measuring range l/hH ₂ O	Adhesive socket						Fusion socket			Spigot PP			Spigot PVDF			Threaded socket		
	d	DN	G	d _u	L		d _m	z	L _m	d _m	z	L _m	d	L _g	S SDR 11	d	L _g	S SDR 33
50-500	32	25	1 1/2"	60	350		32	356	400	32	360	396	32	460	2.9	32	458	2.4
100-1,000																		
150-1,500	40	32	2"	72	350		40	356	408	40	360	400	40	476	3.7	40	476	2.4
250-2,500																		
200-2,000	50	40	2 1/4"	83	350		50	356	418	50	360	406	50	482	4.6	50	474	3
300-3,000																		
600-6,000	63	50	2 3/4"	103	350		63	356	432	63	360	414	63	488	5.8	63	476	3
1,000-10,000																		
1,500-15,000																		
2,000-20,000	75	65	3 1/2"	122	350		75	356	444	75	360	422	75	602	6.9	75	468	3.6
3,000-30,000																		
8,000-60,000																		



Flow meter M335-M350

ARTICLE NUMBERS

d	DN	Measuring tube	Type M335		Type M350	
			PA		PA	
		Measuring range l/h	Float PVDF Art.-No.	Float PVDF/Magnet Art.-No.	Float PVDF Art.-No.	Float PVDF/Magnet Art.-No.
32	25	50 - 500	17.100.214	17.100.256	17.100.298	17.100.340
32	25	100 - 1,000	17.100.215	17.100.257	17.100.299	17.100.341
40	32	150 - 1,500	17.100.216	17.100.258	17.100.300	17.100.342
40	32	250 - 2,500	17.100.217	17.100.259	17.100.301	17.100.343
50	40	200 - 2,000	17.100.218	17.100.260	17.100.302	17.100.344
50	40	300 - 3,000	17.100.219	17.100.261	17.100.303	17.100.345
50	40	600 - 6,000	17.100.220	17.100.262	17.100.304	17.100.346
63	50	600 - 6,000	17.100.221	17.100.263	17.100.305	17.100.347
63	50	1,000 - 10,000	17.100.222	17.100.264	17.100.306	17.100.348
63	50	1,500 - 15,000	17.100.224	17.100.266	17.100.308	17.100.350
75	65	2,000 - 20,000	17.100.225	17.100.267	17.100.309	17.100.351
75	65	3,000 - 30,000	17.100.226	17.100.268	17.100.310	17.100.352
75	65	8,000 - 60,000	17.100.227	17.100.269	17.100.311	17.100.353
d	DN	Measuring tube	PSU		PSU	
32	25	50 - 500	17.100.228	17.100.270	17.100.312	17.100.354
32	25	100 - 1,000	17.100.229	17.100.271	17.100.313	17.100.355
40	32	150 - 1,500	17.100.230	17.100.272	17.100.314	17.100.356
40	32	250 - 2,500	17.100.231	17.100.273	17.100.315	17.100.357
50	40	200 - 2,000	17.100.232	17.100.274	17.100.316	17.100.358
50	40	300 - 3,000	17.100.233	17.100.275	17.100.317	17.100.359
50	40	600 - 6,000	17.100.234	17.100.276	17.100.318	17.100.360
63	50	600 - 6,000	17.100.235	17.100.277	17.100.319	17.100.361
63	50	1,000 - 10,000	17.100.236	17.100.278	17.100.320	17.100.362
63	50	1,500 - 15,000	17.100.238	17.100.280	17.100.322	17.100.364
75	65	2,000 - 20,000	17.100.239	17.100.281	17.100.323	17.100.365
75	65	3,000 - 30,000	17.100.240	17.100.282	17.100.324	17.100.366
75	65	8,000 - 60,000	17.100.241	17.100.283	17.100.325	17.100.367
d	DN	Measuring tube	PVC		PVC	
32	25	50 - 500	17.100.200	17.100.242	17.100.284	17.100.326
32	25	100 - 1,000	17.100.201	17.100.243	17.100.285	17.100.327
40	32	150 - 1,500	17.100.202	17.100.244	17.100.286	17.100.328
40	32	250 - 2,500	17.100.203	17.100.245	17.100.287	17.100.329
50	40	200 - 2,000	17.100.204	17.100.246	17.100.288	17.100.330
50	40	300 - 3,000	17.100.205	17.100.247	17.100.289	17.100.331
50	40	600 - 6,000	17.100.206	17.100.248	17.100.290	17.100.332
63	50	600 - 6,000	17.100.207	17.100.249	17.100.291	17.100.333
63	50	1,000 - 10,000	17.100.208	17.100.250	17.100.292	17.100.334
63	50	1,500 - 15,000	17.100.210	17.100.252	17.100.294	17.100.336
75	65	2,000 - 20,000	17.100.211	17.100.253	17.100.295	17.100.337
75	65	3,000 - 30,000	17.100.212	17.100.254	17.100.296	17.100.338
75	65	8,000 - 60,000	17.100.213	17.100.255	17.100.297	17.100.339

Article numbers for flow meter M 23 PVDF on request.

SPECIAL SCALES

Measuring range	Air 0 bar		Air 1 bar		Air 2 bar		Air 3 bar	
H ₂ O l/h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h
50-500	00.005.526	1.5-14	00.005.602	3-20	00.005.615	3-24	00.005.628	3-28
100-1,000	00.005.527	2.5-29	00.005.603	4-41	00.005.616	5-50	00.005.629	5-58
150-1,500	00.005.528	4-45	00.005.604	6-63	00.005.617	7-77	00.005.630	8-90
250-2,500	00.005.529	7-79	00.005.605	10-111	00.005.618	12-136	00.005.631	14-158
200-2,000	00.005.530	6-58	00.005.606	9-82	00.005.619	11-100	00.005.632	12-116
300-3,000	00.005.531	9-108	00.005.607	13-152	00.005.620	16-186	00.005.633	18-216
600-6,000	00.005.532	17-174	00.005.608	24-246	00.005.621	30-301	00.005.634	34-348
600-6,000	00.005.533	17-175	00.005.609	24-247	00.005.622	30-302	00.005.635	34-350
1,000-10,000	00.005.534	29-301	00.005.610	41-425	00.005.623	51-520	00.005.636	58-602
1,500-15,000	00.005.535	53-405	00.005.611	75-572	00.005.624	92-700	00.005.637	106-810
2,000-20,000	00.005.536	55-545	00.005.612	78-770	00.005.625	96-942	00.005.638	110-1,090
3,000-30,000	00.005.537	80-758	00.005.613	113-1,072	00.005.626	139-1,311	00.005.639	160-1,516
8,000-60,000	00.005.538	140-840	00.005.614	200-1,150	00.005.627	250-1,450	00.005.640	300-1,650
Measuring range	Air 4 bar		Air 5 bar		Air 6 bar		Air 7 bar	
H ₂ O l/h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h	Art.-No.	N m ³ /h
50-500	00.005.641	4-31	00.005.654	4-34	00.005.667	5-37	00.005.680	5-39
100-1,000	00.005.642	6-65	00.005.655	7-71	00.005.668	7-76	00.005.681	8-82
150-1,500	00.005.643	9-100	00.005.656	10-110	00.005.669	11-119	00.005.682	12-127
250-2,500	00.005.644	16-177	00.005.657	18-193	00.005.670	19-209	00.005.683	20-223
200-2,000	00.005.645	14-130	00.005.658	15-142	00.005.671	16-153	00.005.684	17-164
300-3,000	00.005.646	21-241	00.005.659	23-264	00.005.672	24-286	00.005.685	26-305
600-6,000	00.005.647	39-389	00.005.660	42-426	00.005.673	45-461	00.005.686	49-492
600-6,000	00.005.648	39-392	00.005.661	42-428	00.005.674	45-463	00.005.687	49-495
1,000-10,000	00.005.649	65-674	00.005.662	72-737	00.005.675	77-797	00.005.688	83-851
1,500-15,000	00.005.650	119-907	00.005.663	130-992	00.005.676	141-1,073	00.005.689	150-1,146
2,000-20,000	00.005.651	124-1,220	00.005.664	135-1,335	00.005.677	146-1,444	00.005.690	156-1,542
3,000-30,000	00.005.652	180-1,697	00.005.665	197-1,857	00.005.678	212-2,008	00.005.691	227-2,145
8,000-60,000	00.005.653	300-1,850	00.005.666	350-2,000	00.005.679	350-2,200	00.005.692	400-2,300
Measuring range	Air 8 bar		HCl 30-33 %		NaOH 30 %		NaOH 50 %	
H ₂ O l/h	Art.-No.	N m ³ /h	Art.-No.	l/h	Art.-No.	l/h	Art.-No.	l/h
50-500	00.005.693	4.5-42	00.005.539	20-405	00.005.552	4-226	00.005.565	1-55
100-1,000	00.005.694	7.5-87	00.005.540	55-866	00.005.553	15-600	00.005.566	3-192
150-1,500	00.005.695	12-135	00.005.541	90-1,340	00.005.554	30-970	00.005.567	6-365
250-2,500	00.005.696	21-237	00.005.542	165-2,310	00.005.555	70-1,800	00.005.568	15-770
200-2,000	00.005.697	18-174	00.005.543	115-1,660	00.005.556	35-1,240	00.005.569	8-520
300-3,000	00.005.698	27-324	00.005.544	190-3,050	00.005.557	75-2,370	00.005.570	15-1,170
600-6,000	00.005.699	51-522	00.005.545	420-4,900	00.005.558	230-4,000	00.005.571	50-2,270
600-6,000	00.005.700	51-525	00.005.546	430-5,090	00.005.559	240-4,700	00.005.572	55-2,300
1,000-10,000	00.005.701	87-903	00.005.547	750-9,460	00.005.560	475-7,340	00.005.573	140-4,340
1,500-15,000	00.005.702	159-1,215	00.005.548	1,415-11,570	00.005.561	1,030-10,330	00.005.574	420-5,820
2,000-20,000	00.005.703	165-1,635	00.005.549	1,500-17,300	00.005.562	915-11,720	00.005.575	245-7,590
3,000-30,000	00.005.704	240-2,274	00.005.550	2,175-24,120	00.005.563	1,195-16,040	00.005.576	400-11,120
8,000-60,000	00.005.705	400-2,500	00.005.551	5,000-58,000	00.005.564	300-34,000	00.005.577	1,700-13,000

Special scales as requested by the customer

Details required: Medium, spec. weight in g/cm³, viscosity in cP or mPas, operating temperature in °C, desired measuring range in l/h.

Application instructions for special scales

When applying special scales later, ensure that the marking on the scale corresponds with the one on the measuring tube.

Flow meter M335-M350

ACCESSORIES

Limit value contact 240 min.
Limit value contact 242 max.
For further information, refer to the separate data sheets.

INSTALLATION AND ASSEMBLY INSTRUCTIONS

- Install the flow meter into the pipeline system vertically and without tension.
- Provide an inlet and outlet section, Inlet approx. 10 x DN, outlet approx. 5 x DN.

NOTES ON OPERATION

- Avoid pressure surges, as these can damage the unit.
- Exercise caution when installing: the measuring tube must not come into contact with solvent !
- Before start-up, make sure that the connected parts are sufficiently tightened.
- The union nuts must not be mixed up on a measuring tube made from the material PVDF. The overall length also does not correspond to the dimensions table.

We reserve the right to make technical changes in the interest of improvement.

SPECIAL SCALES H₂O WITH OTHER UNITS OF MEASUREMENT

Measuring range series M335/M350

d	DN	l/h	Art.-No.	l/min	Art.-No.	m ³ /h	Art.-No.	US GPM
32	25	50 - 500	00.005.487	0.8 - 8	00.005.740	0.05 - 0.5	00.005.513	0.22 - 2.2
32	25	100 - 1,000	00.005.488	1.7 - 17	00.005.741	0.1 - 1	00.005.514	0.44 - 4.4
40	32	150 - 1,500	00.005.489	2.5 - 25	00.005.742	0.15 - 1.5	00.005.515	0.66 - 6.6
40	32	250 - 2,500	00.005.490	4 - 41	00.005.743	0.25 - 2.5	00.005.516	1.1 - 11
50	40	200 - 2,000	00.005.491	3.3 - 33	00.005.744	0.2 - 2	00.005.517	0.88 - 8.8
50	40	300 - 3,000	00.005.492	5 - 50	00.005.745	0.3 - 3	00.005.518	1.32 - 13.2
50	40	600 - 6,000	00.005.493	10 - 100	00.005.746	0.6 - 6	00.005.519	2.64 - 26.4
63	50	600 - 6,000	00.005.494	10 - 100	00.005.747	0.6 - 6	00.005.520	2.64 - 26.4
63	50	1,000 - 10,000	00.005.495	16 - 166	00.005.748	1 - 10	00.005.521	4.4 - 44.02
63	50	1,500 - 15,000	00.005.496	25 - 250	00.005.749	1.5 - 15	00.005.522	6.6 - 66.04
75	65	2,000 - 20,000	00.005.497	33 - 330	00.005.750	2 - 20	00.005.523	8.8 - 88
75	65	3,000 - 30,000	00.005.498	50 - 500	00.005.751	3 - 30	00.005.524	13.2 - 132
75	65	8,000 - 60,000	00.005.499	133 - 1,000	00.005.752	8 - 60	00.005.525	35.2 - 264

PRESSURE CORE TABLE FOR GASES: CALIBRATION PRESSURE 0 BAR

Operating pressure in bar	Factor x display value	Operating pressure in bar	Factor x display value
0.0	1.000	3.0	2.000
0.2	1.095	4.0	2.240
0.4	1.184	5.0	2.450
0.6	1.265	6.0	2.650
0.8	1.340	7.0	2.830
1.0	1.414	8.0	3.000
1.5	1.580	9.0	3.165
2.0	1.730	10.0	3.320

This table is used to correct values displayed for gases by the flow meter if the operating pressure deviates from the pressure used as a basis for the calibration. The values displayed on the flow meter are simply multiplied by the factor corresponding to the operating pressure.

We supply special scales for operating pressures of between 1 and 8 bar (see page 7).

Limit value contact

Z 40 min./Z 42 max.

For float-type
flow meters

M 335/M 350/M 123/M 23 PVDF



USE

The limit value contacts Z40 and Z42 are used for external monitoring of limited flow values on our (float-type) flow meters. They are pushed onto the guide rod located on the flow meter and can be adjusted to any desired value on the corresponding scale.

FUNCTION

A solenoid installed in the float closes or opens a reed contact permanently cast in the limit value contact. The switching function is bistable. This means that the switching state is maintained even if the solenoid float moves away from the contact.

SWITCHING STATES

	Float above	Float below
Z 40 min	open	closed
Z 42 max	closed	open

Attention

When retrofitting the flow meter with limit value contacts, ensure that the standard float is replaced with a solenoid float. The solenoid float is clearly identified by an "M" on the top.

ORDER NUMBERS

Z 40 min.	17.100.686
Z 42 max.	17.100.687

TECHNICAL DATA

Switching voltage*	max. 230 V~
Switching rating*	max. 10 W/12 VA
Switching current*	max. 0.5 A
Contact resistance	< 200 mOhm
Leakage resistance	> 1011 Ohm
Permissible ambient temperature	0 to +55°C
Protection type in ace.	with DIN 40050-IP 65
Switching hysteresis	1-2 mm float travel

We reserve the right to make technical changes in the interest of improvement.

* Even a brief overshoot is not permitted. This is uncontrollable with inductive or capacitive peaks, e.g. with contactors or solenoid valves. It is therefore recommended to use a limit value switch or a contact protection relay.

Flow meter M335-M350

Measurement sensor Z 60
4 - 20 mA output signal

For float-type flow meters
M335/M350/M23 PVDF



DESCRIPTION

The Z 60 measurement sensor is a further development of the Z50 measurement sensor. In contrast to the predecessor model, the Z60 no longer uses reed contacts, but instead a new, specially developed electronics system with a microprocessor and sensors. The measurement sensor delivers an output signal of 4 - 20 mA depending on the vertical position of the solenoid float in the flow meter. This signal can be processed further, e.g. via an SPS in order to control processes, or to indicate the flow rate precisely on an external display.

Please note :

As the resolution of the different scales varies, we always program the respective measurement range individually. For this reason, please notify us of the desired measurement range when ordering.

TECHNICAL DATA

- Supply voltage: 12-24 VDC (+ - 10%)
- Power consumption: < 50 mA
- Load resistance: Min. 0 max. 500 Ohm
- Current output: 4 - 20 mA (3 conductors)
- Protection type: IP 65
- Ambient temperature: 0 °C to +50 °C
- Connector: DIN 43650 connector
- Measurement accuracy: < 1 %

Electrical connection

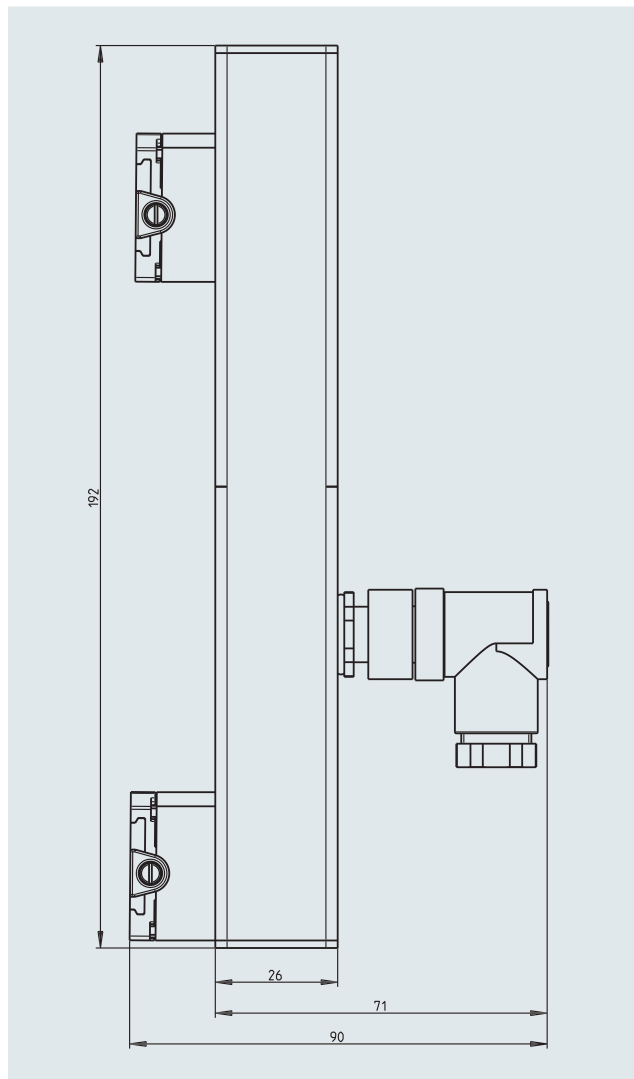
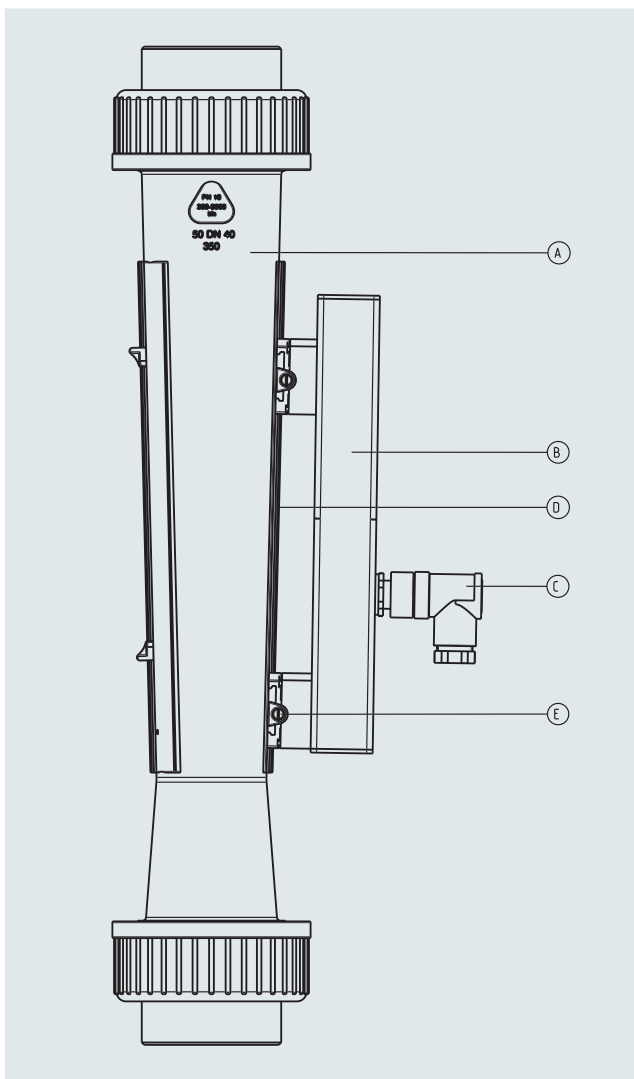
- Pin 1: Operating voltage
12 - 24 V 1 O ← + 24 V
- Pin 2: Output signal
4 - 20 mA 2 O → 4 - 20 mA -----R
- Pin 3: 0 V 3 O →

Functional elements

- A M335/M350 flow meters with solenoid float
- B Z60 measurement sensor
- C Plug connector
- D Guide rod
- E Clamping screw for attaching and adjusting the sensor

Assembly instructions

1. Slide the sensor onto the guiding rod on the flow meter
2. Align the marking on the sensor with the 50% marking on the flow meter scale
3. Tighten clamping screws
4. Remove connector and wire it according to specifications (see "Electrical connection")



ARTICLE NUMBERS

Measuring range l/h	Article No.	Measuring range l/h	Article No.
50 - 500	17.100.926	600 - 6,000 (DN50)	17.100.933
100 - 1,000	17.100.927	1,000 - 10,000	17.100.934
150 - 1,500	17.100.928	1,500 - 15,000	17.100.935
250 - 2,500	17.100.929	2,000 - 20,000	17.100.936
200 - 2,000	17.100.930	3,000 - 30,000	17.100.937
300 - 3,000	17.100.931	8,000 - 60,000	17.100.938
600 - 6,000 (DN40)	17.100.932		

The technical data is non-binding. It is not to be regarded as representing assured properties or as a guarantee of quality or durability. We reserve the right to make changes. Our general terms of sale apply.

Pressure reducer v182-V82

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions



Pressure reducer V182-V82

Pressure reducer

V182 · V82

DN 10 to DN 100



V182 PVDF



V182 PP



V182 PVC

USE

The pressure reducer V182/V82 reduces the system pressure to a defined value. Utilising the differential pressure, the pressure reducer sets itself to the set operating pressure. There is no direct relationship between the output pressure and the inlet pressure.

FUNCTION

The output pressure is exerted onto the diaphragm surface through a control bore and counteracts the set spring force. Once balance of pressure has been achieved, the valve closes and keeps the operating pressure constant by doing so. If the pressure decreases at the output side, then the set spring force is greater, and the valve opens until the balance of pressure has once more been achieved.

SPECIAL FEATURES

- All parts that come into contact with the medium are made of highly-resistant plastics
- The counter mechanism is hermetically sealed from the medium
- Good control properties thanks to optimisation of the piston, spring and control surface
- No auxiliary energy required
- Largely maintenance-free and can be installed in any position
- Diaphragm-protected pressure gauge for reading off the output pressure
- Valve adjustment also possible under operating pressure

MATERIALS

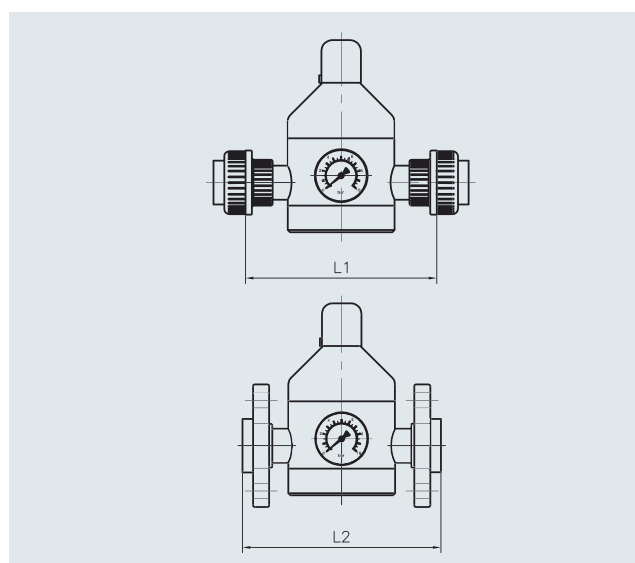
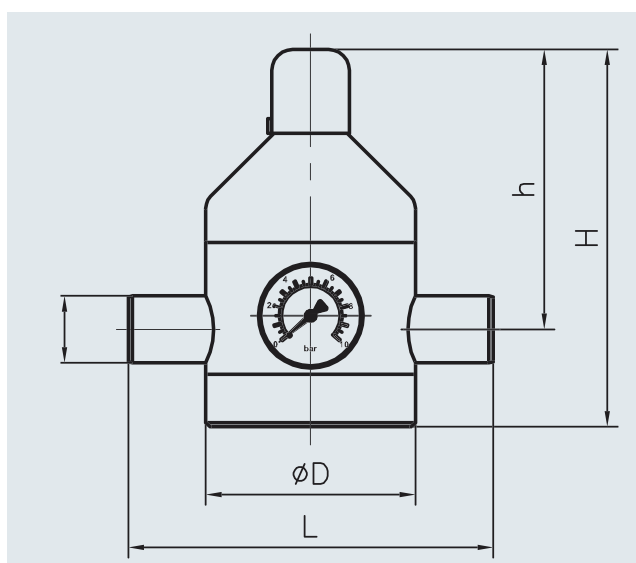
Housing	Permissible operating temperature		Diaphragm / V 82	Seal / V 182
PVC-U	0 to	+ 60 °C	EPDM	EPDM
PP	-10 to	+ 80 °C	EPDM / PTFE coated	Viton
PVDF	-20to	+ 100 °C		

TECHNICAL DATA

Type	Size	PN	Adjustment range in bar
V 182	DN 10-50	10	0.5 - 9
V 82	DN 65-80	6	0.5- 5
V 82	DN 100	4	1 - 3

DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	Ø D	H	h	L PVC-U adhesive PP-PVDF fusion spigot	L PVDF- HP, PP Butt fusion spigot WNF/IR	L1	L2
16	10	70	147	112	134	–	154	140
20	15	70	147	112	134	150	154	140
25	20	100	180	130	174	190	185	180
32	25	100	180	130	174	190	185	180
40	32	130	230	175	224	240	248	230
50	40	130	230	175	224	240	252	230
63	50	150	250	210	244	260	280	250
75	65	200	350	250	300	300	–	306
90	75	250	425	305	360	360	–	370
110	100	300	495	345	420	420	–	430



The pressure reducer can be delivered pre-set by our plant if desired. For this, we require the necessary input and output pressure.

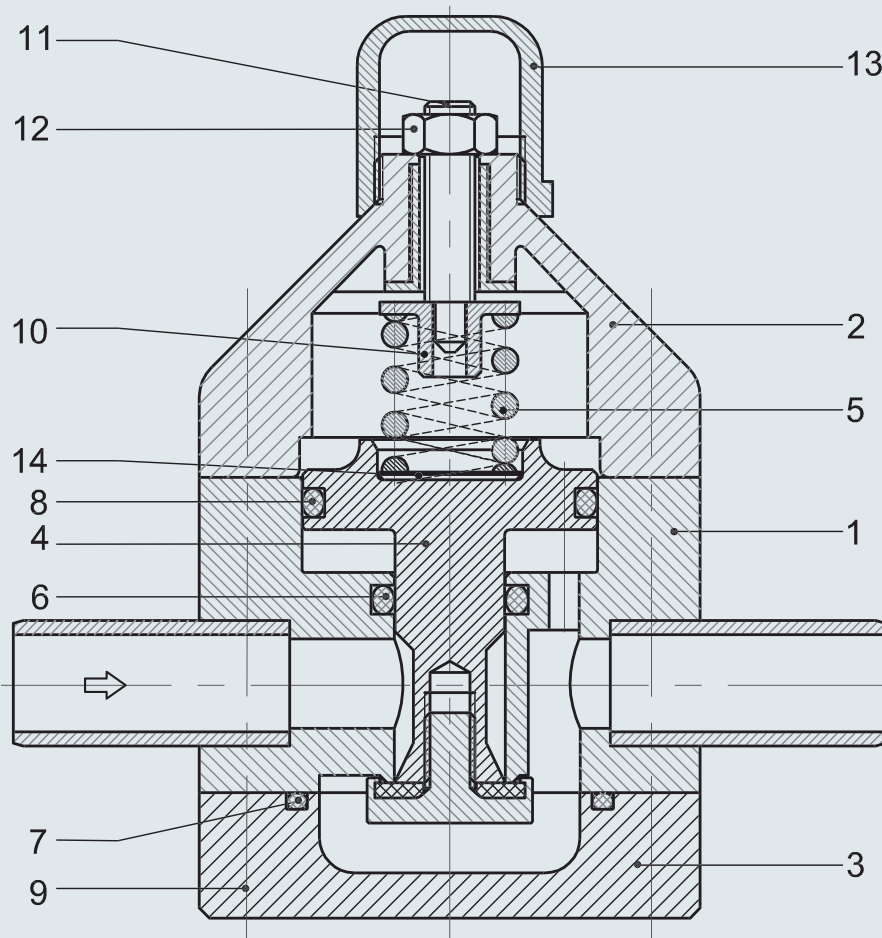
Pressure reducer v182-v82

ARTICLE NUMBERS

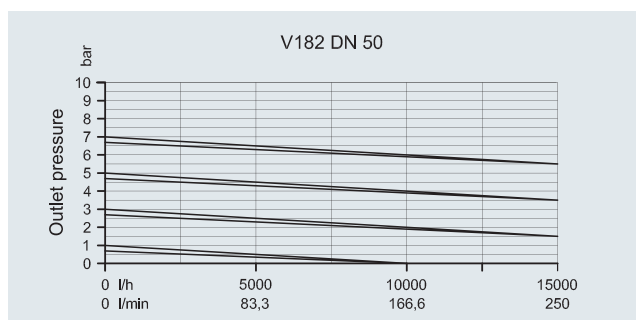
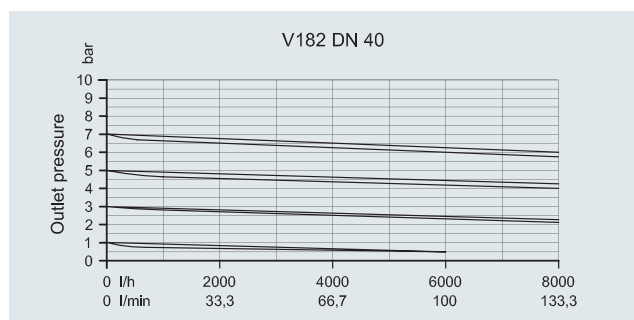
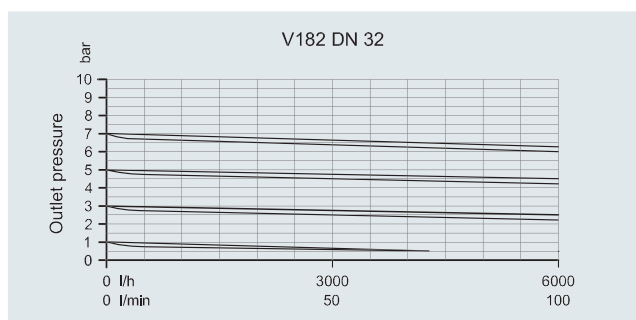
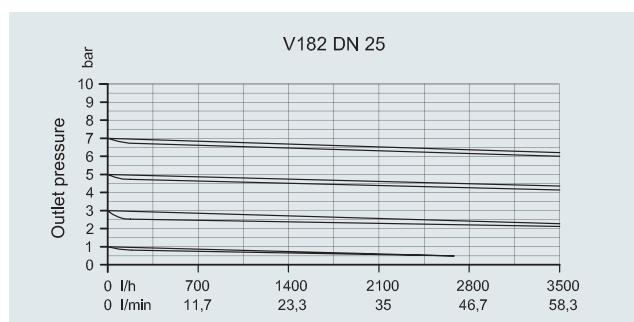
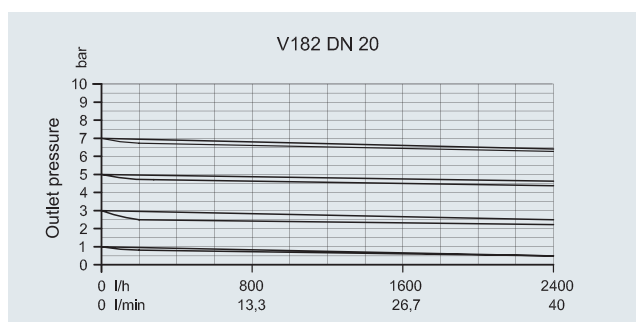
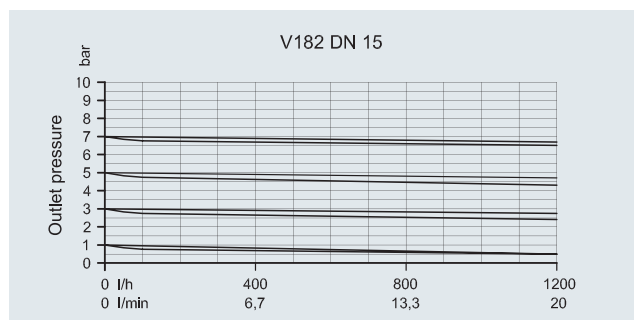
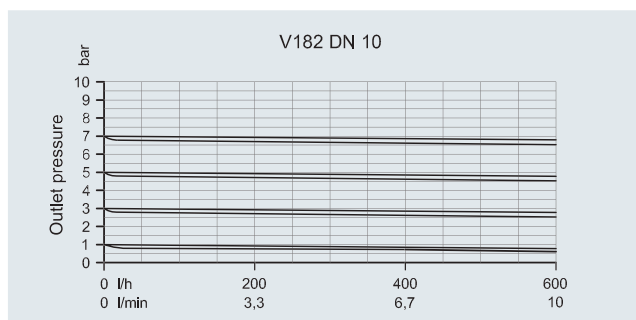
d	DN	Type	PVC/EPDM	PVC/FPM	PP/EPDM	PP/FPM	PP/EPDM IR	PP/FPM IR	PVDF/FPM	PVDF/FPM IR
16	10	V182	17.005.510	17.005.520	17.005.530	17.005.540	17.005.550	17.005.560	17.005.570	17.005.580
20	15	V182	17.005.511	17.005.521	17.005.531	17.005.541	17.005.551	17.005.561	17.005.571	17.005.581
25	20	V182	17.005.512	17.005.522	17.005.532	17.005.542	17.005.552	17.005.562	17.005.572	17.005.582
32	25	V182	17.005.513	17.005.523	17.005.533	17.005.543	17.005.553	17.005.563	17.005.573	17.005.583
40	32	V182	17.005.514	17.005.524	17.005.534	17.005.544	17.005.554	17.005.564	17.005.574	17.005.584
50	40	V182	17.005.515	17.005.525	17.005.535	17.005.545	17.005.555	17.005.565	17.005.575	17.005.585
63	50	V182	17.005.516	17.006.286	17.006.287	17.006.288	17.006.302	17.006.303	17.005.576	17.006.304
Diaphragm			EPDM	PTFE	EPDM	PTFE	EPDM	PTFE	PTFE	PTFE
75	65	V82	17.002.509	17.002.511	17.002.609	17.002.611	17.005.557	17.005.567	17.003.559	17.005.587
90	80	V82	17.002.513	17.002.515	17.002.613	17.002.615	17.005.558	17.005.568	–	–
110	100	V82	17.002.517	17.002.519	17.002.617	17.002.619	17.005.559	17.005.569	–	–

INDIVIDUAL PARTS

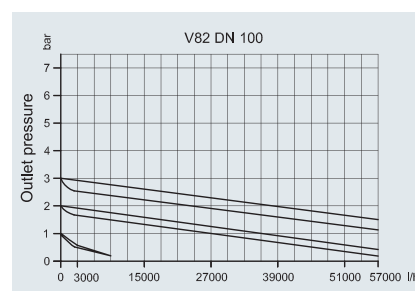
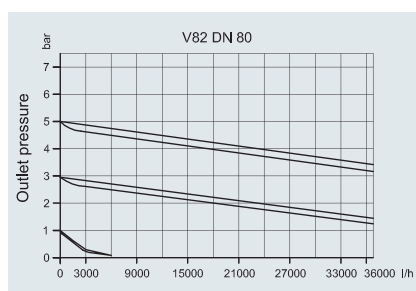
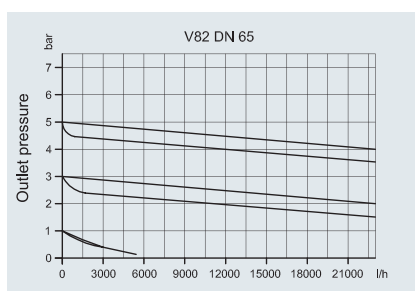
Pos.	Designation
1	Valve body assembly
2	Valve upper body assembly
3	Valve lower body
4	Piston assembly
5	Compression spring
6	Piston O-ring (bottom)
7	O-ring (bottom)
8	Piston O-ring (top)
9	Housing screws
10	Spring plate
11	Adjustment screw
12	Lock nut
13	Cap
14	Spring support plate



CHARACTERISTIC GRAPHS V 182



CHARACTERISTIC GRAPHS V 82



The characteristic curves on the graphs show the decrease in the set outlet pressure from 0 through to the maximum permissible flow rate. The upper and lower lines plot the course of the opening and closing pressure respectively. All characteristic curves apply to water at a temperature of 20 °C.

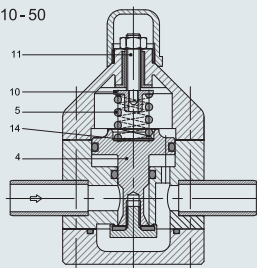
Pressure reducer V182-V82

SPARE PART REGULATOR SET FOR V 182 / V 82 PVC-U / PP / PVDF

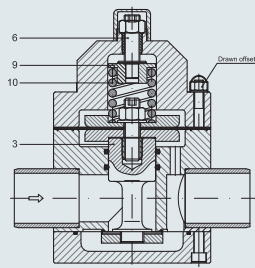
Set consisting of:	Type	DN	PVC/EPDM Article No.	PVC/FPM Article No.	PP/EPDM Article No.	PP/FPM Article No.	PVDF/FPM Article No.
Pos. 4 piston	V 182	10/15	17.006.010	17.006.109	17.006.126	17.006.133	17.006.182
Pos. 5 compression spring	V 182	20/25	17.006.011	17.006.110	17.006.127	17.006.134	17.006.183
Pos. 10 spring plate	V 182	32/40	17.006.012	17.006.111	17.006.128	17.006.135	17.006.184
Pos. 11 adjustment screw	V 182	50	17.006.295	17.006.296	17.006.297	17.006.298	17.006.299
Pos. 14 pressure disc							

Set consisting of:	Type	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/FPM Article No.
Pos. 3 piston	V 82	65	17.006.106	17.006.113	17.006.130	17.006.137	17.006.186
Pos. 6 adjustment screw	V 82	80	17.006.107	17.006.114	17.006.131	17.006.138	–
Pos. 9 spring plate	V 82	100	17.006.108	17.006.115	17.006.132	17.006.139	–
Pos. 10-12 compression springs							

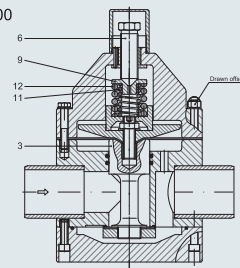
V 182 DN 10-50



V 82 DN 65



V 82 DN 80-100

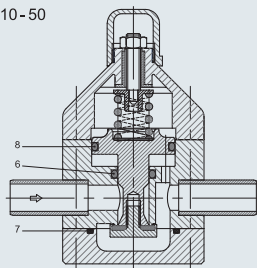


SPARE PART SEAL SET FOR V 182 / V 82 PVC-U / PP / PVDF

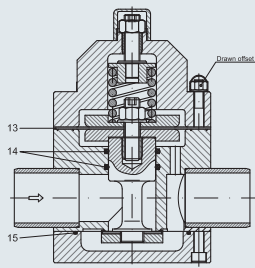
Set consisting of:	Type	DN	PVC/EPDM Article No.	PVC/FPM Article No.	PP/EPDM Article No.	PP/FPM Article No.	PVDF/FPM Article No.
Pos. 6 valve body O-ring	V 182	10/15	17.006.014	17.006.119	17.006.014	17.006.119	17.006.119
Pos. 7 O-ring (bottom)	V 182	20/25	17.006.015	17.006.120	17.006.015	17.006.120	17.006.120
Pos. 8 piston O-ring	V 182	32/40	17.006.016	17.006.121	17.006.016	17.006.121	17.006.121
	V 182	50	17.006.300	17.006.301	17.006.300	17.006.301	17.006.301

Set consisting of:	Type	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/FPM Article No.
Pos. 13 diaphragm	V 82	65	17.006.116	17.006.123	17.006.116	17.006.123	17.006.123
Pos. 14 valve body O-ring	V 82	80	17.006.117	17.006.124	17.006.117	17.006.124	–
Pos. 15 O-ring (bottom)	V 82	100	17.006.118	17.006.125	17.006.118	17.006.125	–

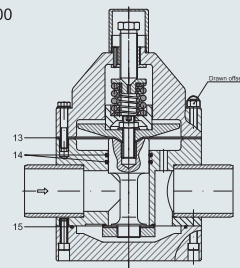
V 182 DN 10-50

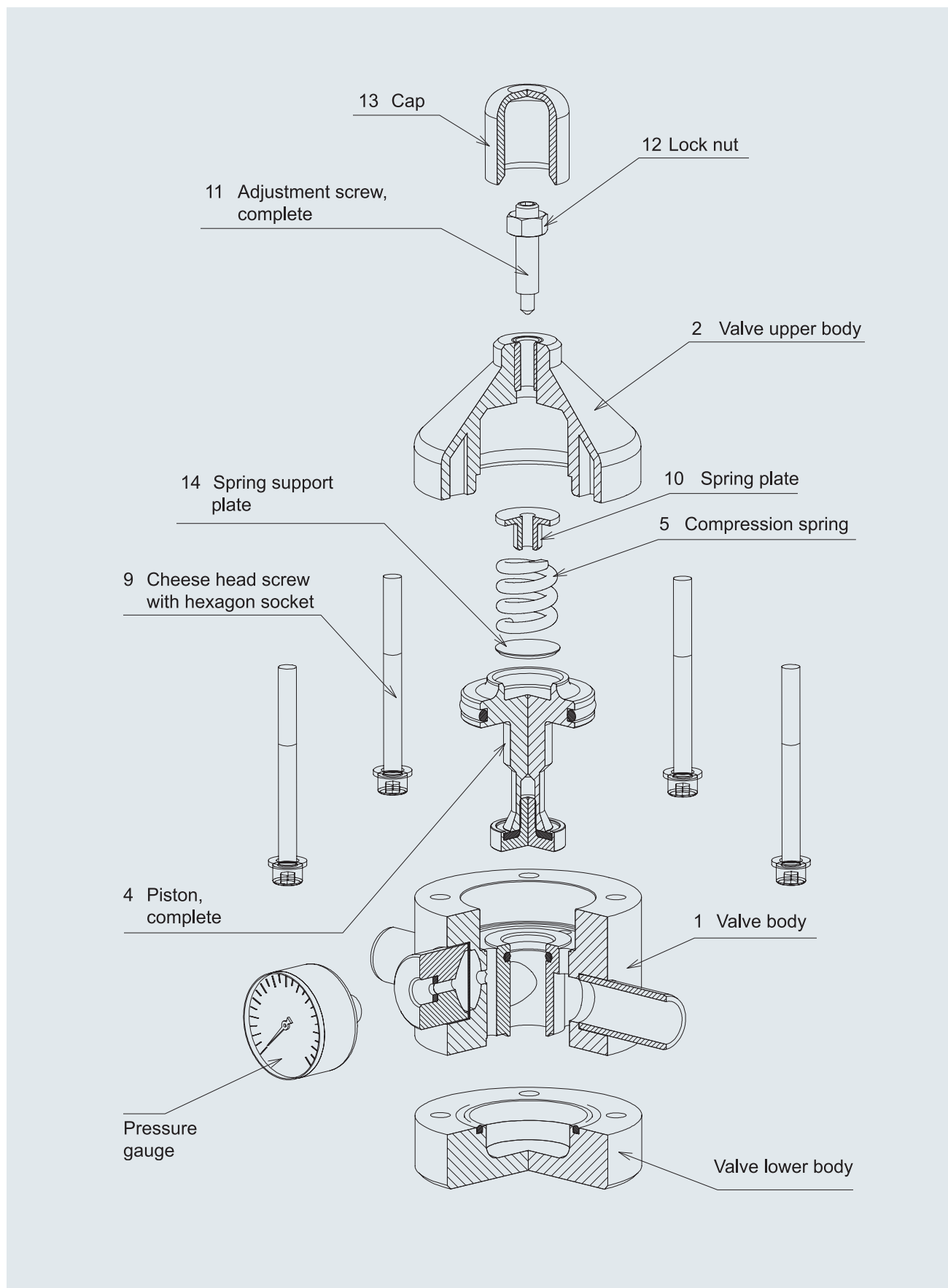


V 82 DN 65



V 82 DN 80-100





The technical data is non-binding. It is not to be regarded as representing assured properties or as a guarantee of quality or durability. We reserve the right to make changes. Our general terms of sale apply.

Pressure reducer v782

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions

Pressure reducer V782 . DN 10 to DN 40



V782 PVDF



V782 PP



V782 PVC

USE

Pressure reducing valves reduce the system pressure to a defined value. Utilising the differential pressure, the pressure reducing valve sets itself to the set operating pressure. There is no direct relationship between the output pressure (operating pressure) and the inlet pressure.

FUNCTION

The output pressure is exerted onto the diaphragm surface through a control bore and counteracts the set spring force. Once balance of pressure has been achieved, the valve closes and keeps the operating pressure constant by doing so. If the pressure decreases at the output side, then the set spring force is greater, and the valve opens until the balance of pressure has once more been achieved.

SPECIAL FEATURES

- All parts that come into contact with the medium are made of highly-resistant plastics
- The control diaphragm separates the actuating drive from the flow section
- The operating pressure is set with an adjustment screw and secured with a lock nut - the setting can also be lead-sealed if desired
- The shape of the housing that assists flow results in good flow values
- Control deviations are kept low by the large control surface and the spiral springs
- No auxiliary energy is required in order to operate the valve
- The valve is largely maintenance-free and can be installed in any position

MATERIALS

Housing	Permissible operating temperature	Diaphragm /seal
PVC	o to +60 °C	EPDM or EPDM /PTFE -coated/Viton
PP	-10 to +80 °C	EPDM or EPDM /PTFE -coated/Viton
PVDF	-20 to +100 °C	EPDM /PTFE -coated/Viton

TECHNICAL DATA

Type	Size	PN	Adjustment range in bar
V 782	DN 10-40	10	0.5 - 9 bar

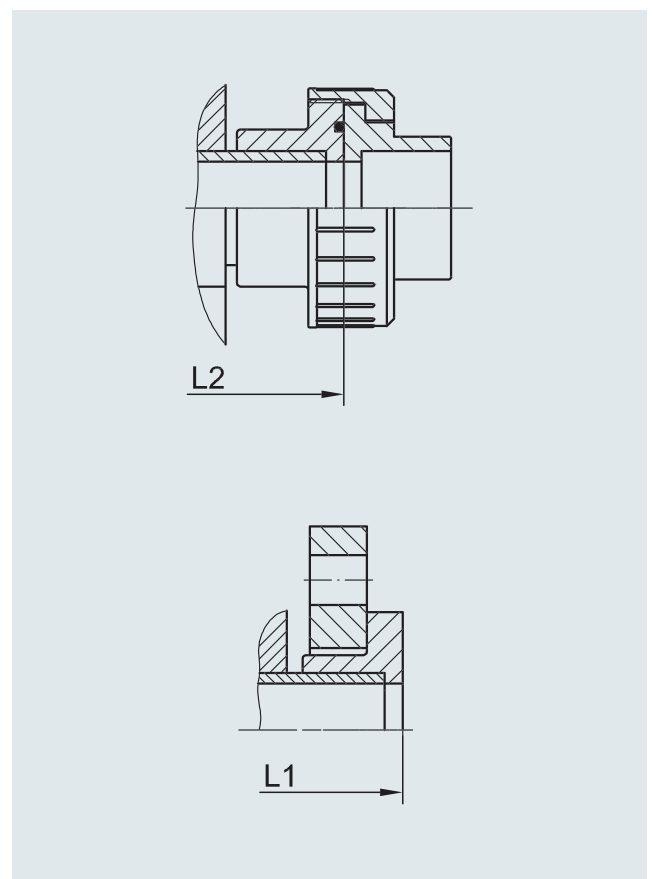
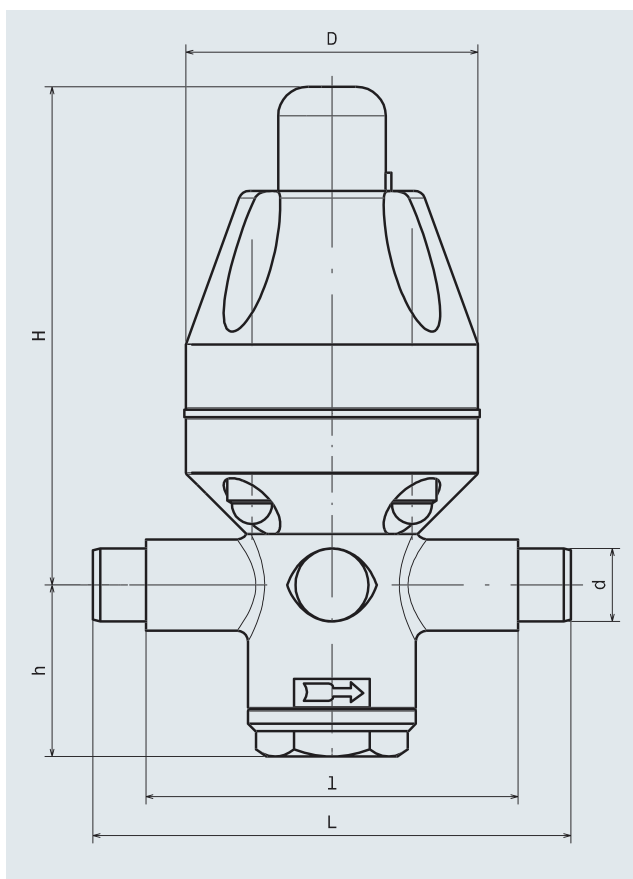
Hystereis max. ~ 0.4 bar

Pressure difference between input and output min. 1 bar

DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	L	Ls	L1	L2	l	H	h	D
16	10	134	—	140	154	102	138	48	83
20	15	134	172	140	154	102	138	48	83
25	20	154	190	160	174	110	205	65	112
32	25	154	190	160	174	110	205	65	112
40	32	224	262	230	248	162	248	95	165
50	40	224	262	230	252	162	248	95	165

L = standard connection, Ls = IR butt fusion spigot, L1 = with flange, L2 = with screw connection



The pressure reducer can be delivered pre-set by our plant if desired. For this, we require the necessary input and output pressure.

Pressure reducer V782 . DN 10 to DN 40

ARTICLE NUMBERS

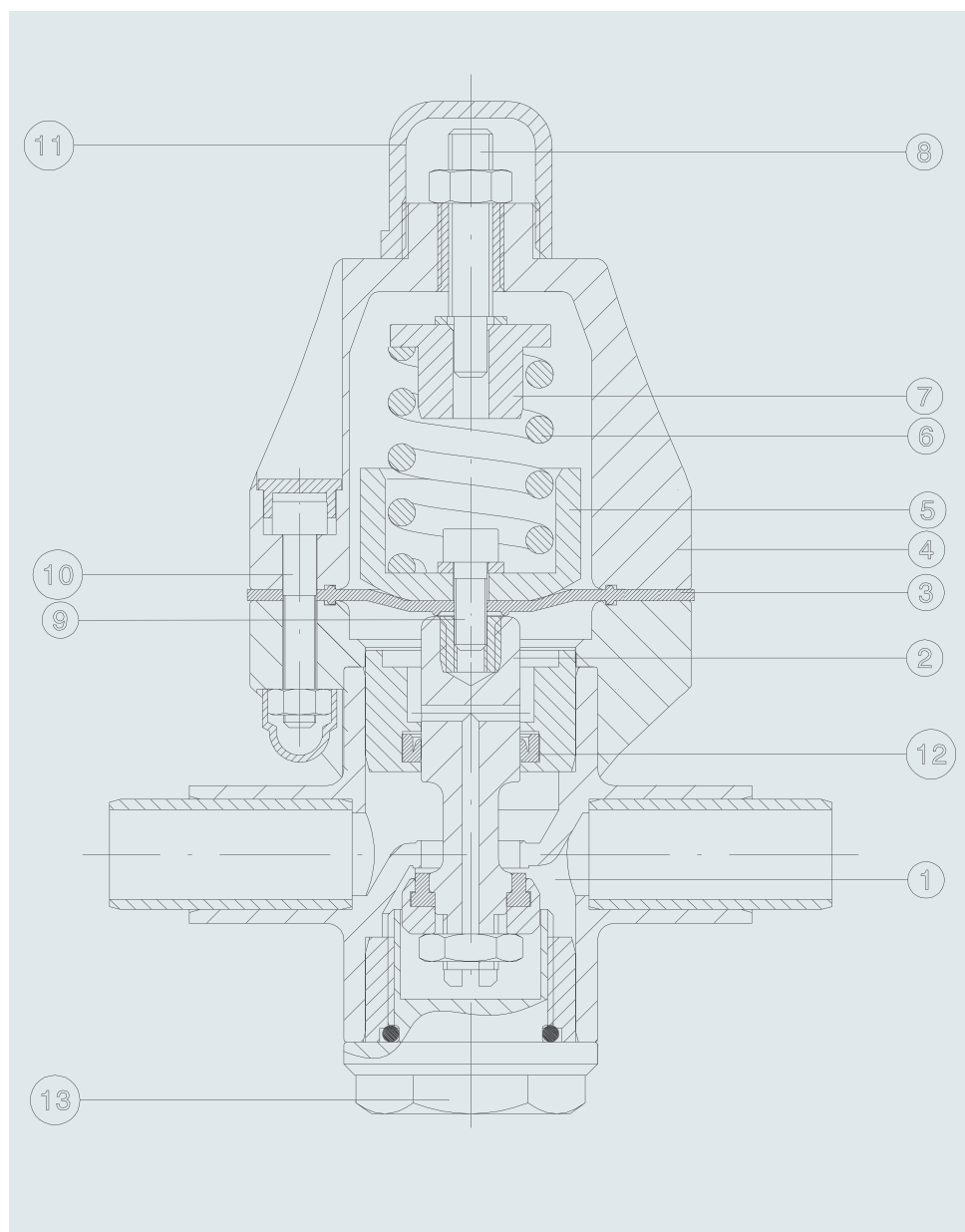
d	DN	Adjustment range in bar	PVC/EPDM	PVC/PTFE	PP/EPDM IR-spigots	PP/PTFE IR-spigots	PVDF/PTFE IR-spigots
16	10	0.5 - 9	17.001.345	17.002.173	17.001.348	17.002.179	17.001.352
20	15	0.5 - 9	17.001.353	17.002.174	17.001.356	17.002.180	17.001.360
25	20	0.5 - 9	17.001.386	17.002.175	17.001.389	17.002.181	17.001.393
32	25	0.5 - 9	17.001.394	17.002.176	17.001.397	17.002.182	17.001.401
40	32	0.5 - 9	17.001.427	17.002.177	17.001.430	17.002.183	17.001.434
50	40	0.5 - 9	17.001.435	17.002.178	17.001.438	17.002.184	17.001.442

Other materials and connections on request.

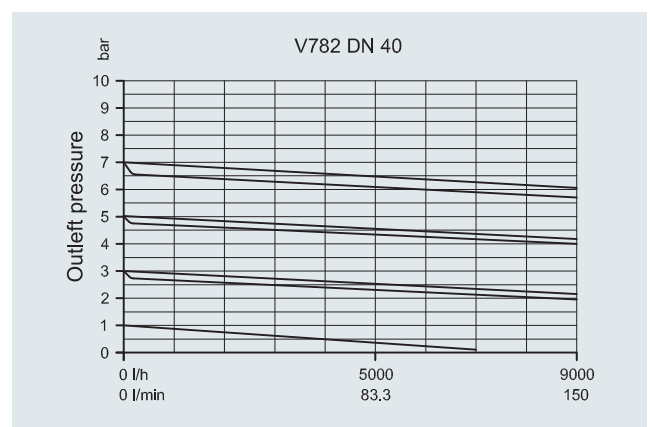
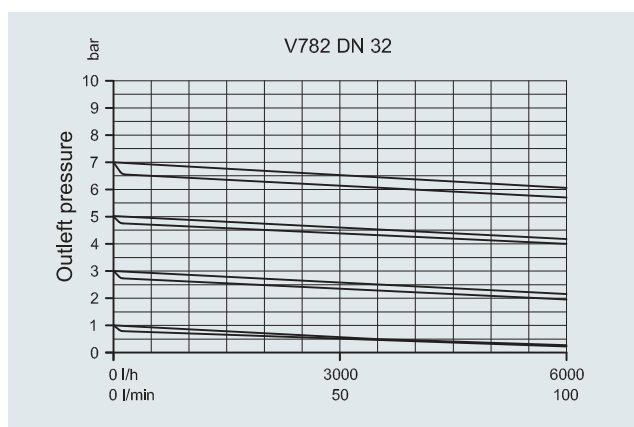
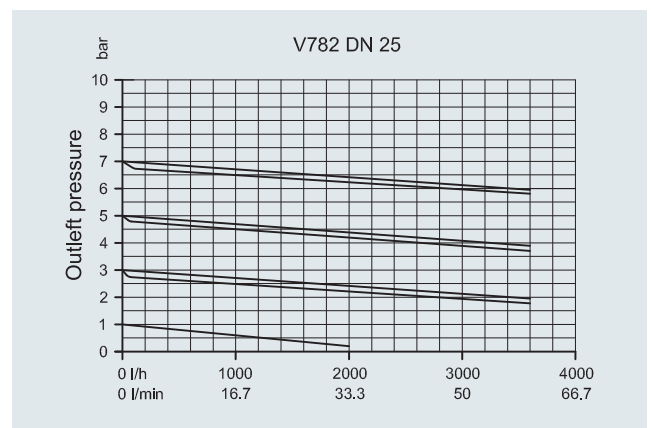
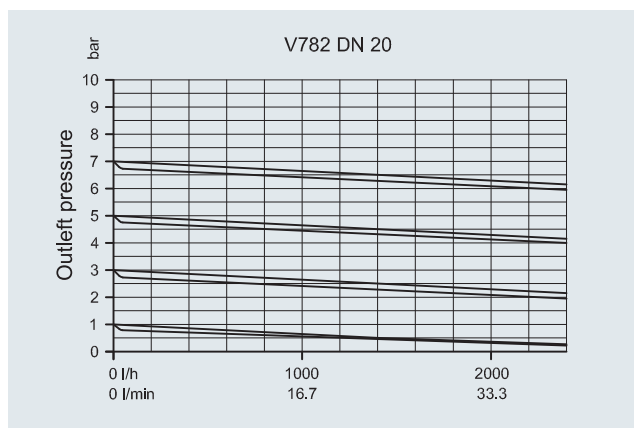
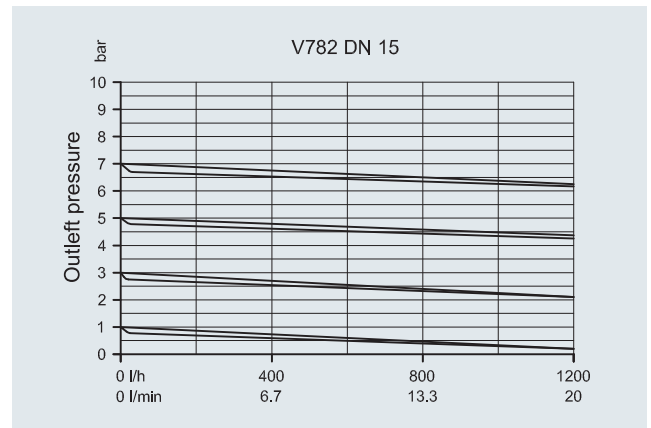
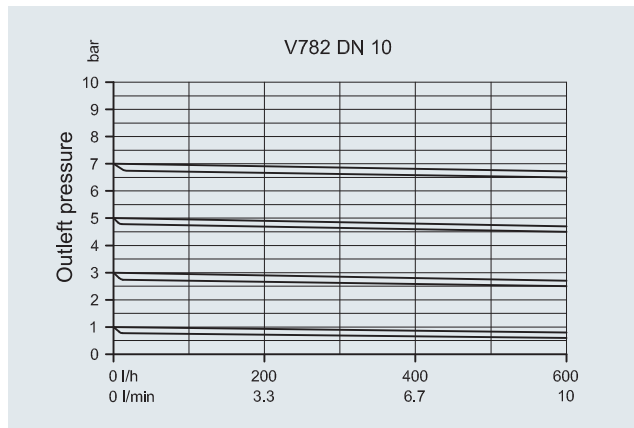
INDIVIDUAL PARTS

Pos. Designation

- 1 Valve lower body
- 2 Piston, complete
- 3 Diaphragm
- 4 Valve upper body
- 5 Compression plate PP
- 6 Compression spring
- 7 Spring plate, aluminium
- 8 Adjustment screw, complete
- 9 Hexagon socket screw
- 10 Hexagon socket screw with nut and cap
- 11 Cap
- 12 Lip ring
- 13 Plug with O-ring



CHARACTERISTIC GRAPHS V 782

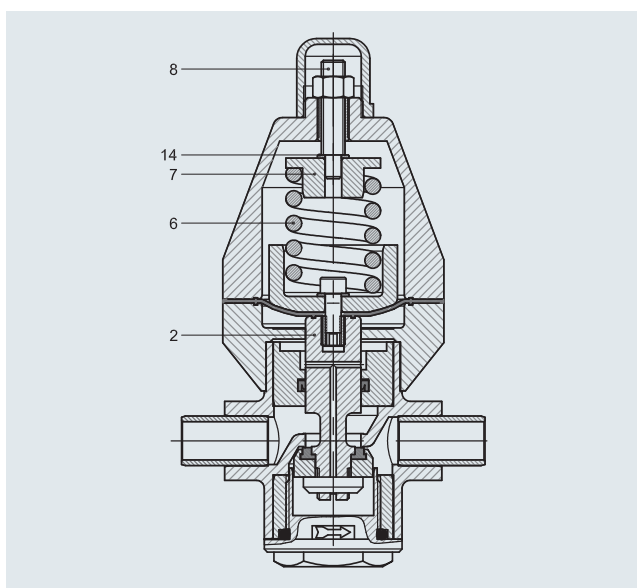


The characteristic curves on the graphs show the decrease in the set outlet pressure from 0 through to the maximum permissible flow rate. The upper and lower lines plot the course of the opening and closing pressure respectively. All characteristic curves apply to water at a temperature of 20 °C.

Pressure reducer V782 . DN 10 to DN 40

SPARE PARTS REGULATOR SET FOR V782 PVC-U / PP / PVDF

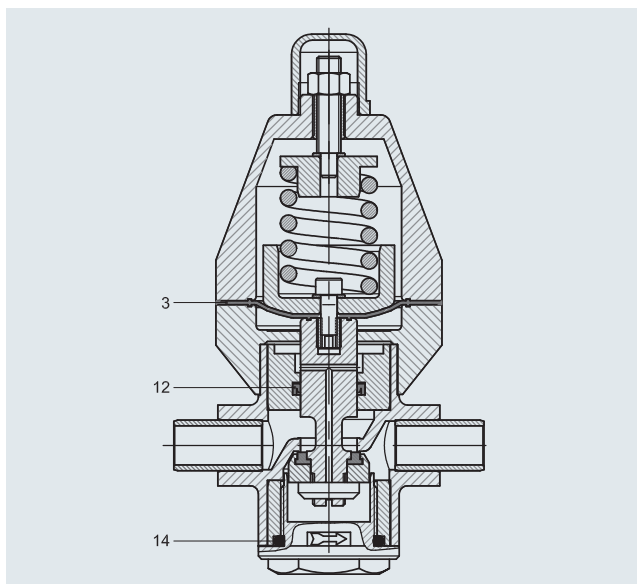
Set consisting of:	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/PTFE Article No.
Pos. 2 piston	10/15	17.006.161	17.006.164	17.006.173	17.006.176	17.006.179
Pos. 6 compression spring	20/25	17.006.162	17.006.165	17.006.174	17.006.177	17.006.180
Pos. 7 spring plate	32/40	17.006.163	17.006.166	17.006.175	17.006.178	17.006.181
Pos. 8 adjustment screw						
Pos. 14 washer						

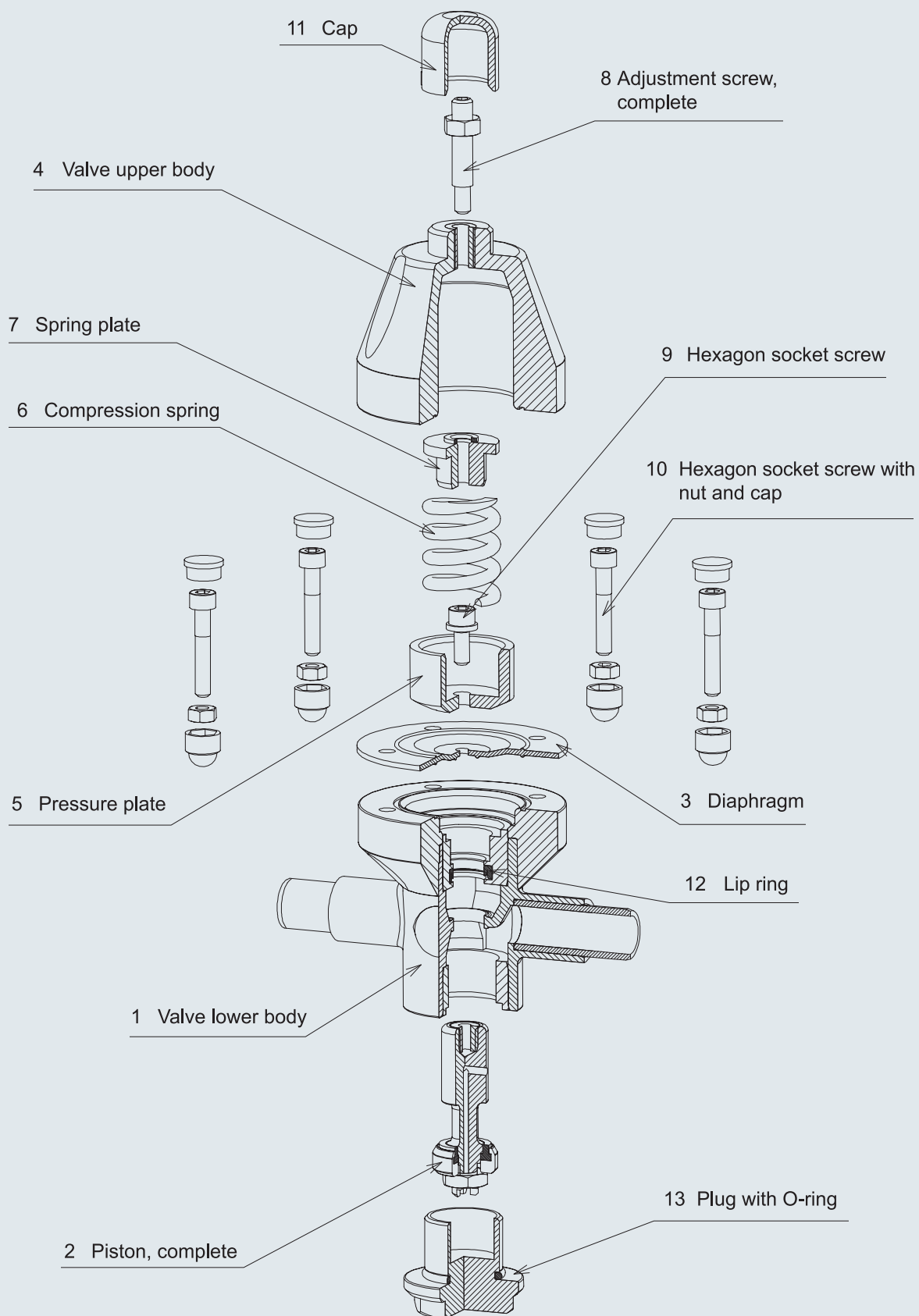


SPARE PARTS SEAL SET FOR V 782 PVC-U / PP / PVDF

Set consisting of:	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/PTFE Article No.
Pos. 3 diaphragm	10/15	17.006.167	17.006.170	17.006.167	17.006.170	17.006.170
Pos. 12 lip ring	20/25	17.006.168	17.006.171*	17.006.168	17.006.171*	17.006.171*
Pos. 14 O-ring	32/40	17.006.169	17.006.172*	17.006.169	17.006.172*	17.006.172*

* FPM





Pressure relief valve v185 - v85

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions

Pressure relief valve V 185 - V 85 . DN 10 à DN 100

Pressure relief valve

V 185 · V 85

DN 10 to DN 100



V 185 PVDF



V 185 PP



V 185 PVC

USE

The pressure relief valve V 185/V 85 protects systems and pipelines against overpressure and pressure peaks. The third pipe spigot integrated in the valve body allows installation in the main line.

The flow-efficient and almost zero-static design of the lower body means that there is only minimum pressure loss in the valve opening.

FUNCTION

The set spring force presses the diaphragm onto the seal seat. If the system pressure exceeds the operating pressure value, the valve opens.

SPECIAL FEATURES

- All parts that come into contact with the medium are made of highly-resistant plastics
- The control diaphragm separates the actuating drive from the flow section
- The operating pressure is adjusted with an adjustment screw and is secured with a lock nut. The setting can also be lead sealed if required
- The shape of the housing that assists flow results in good flow values
- Control deviations are kept low by the large control surface and the spiral spring
- No auxiliary energy is required in order to operate the valve
- The valve is largely maintenance-free and can be installed in any position

MATERIALS

Housing	Permissible operating temperature	Diaphragm
PVC-U	0 to + 60 °C	EPDM
PP	- 10 to + 80 °C	EPDM / PTFE coated
PVDF	- 20 to + 100 °C	

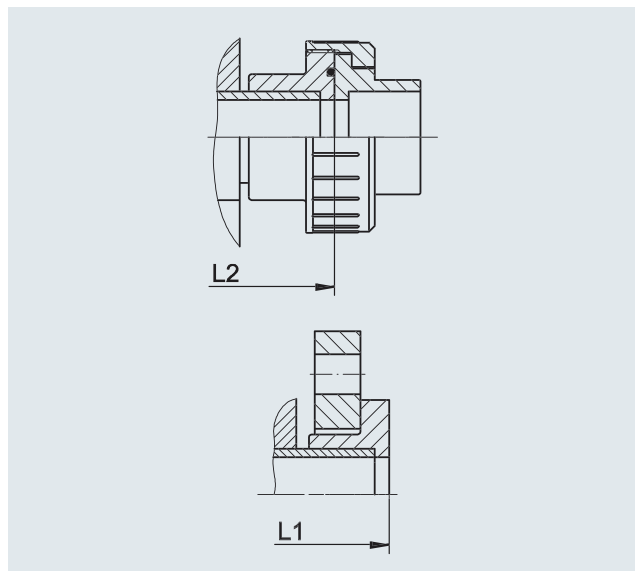
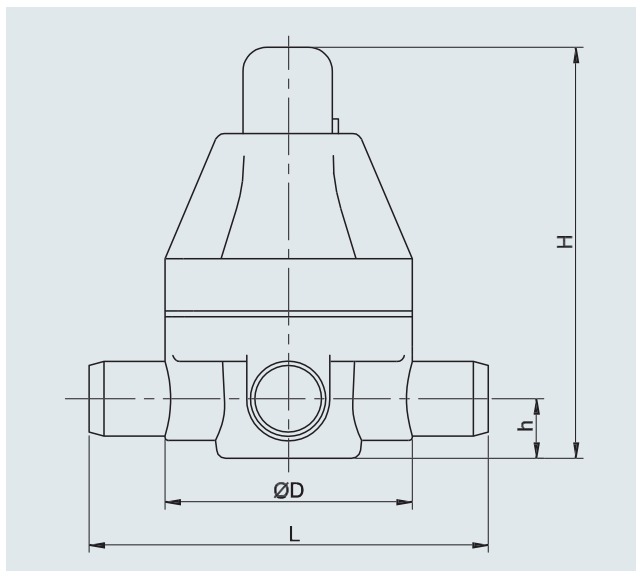
TECHNICAL DATA

Type	Size	PN	Pressure range in bar
V 185	DN 10-50	10	0.5 - 10
V 85	DN 65-80	6	1 - 6
	DN 100	4	1 - 4

DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	L	Ls	L1	L2	D	h	H
16	10	134	–	140	154	83	20	137
20	15	134	158	140	154	83	20	137
25	20	134	158	140	154	83	20	137
32	25	174	198	180	185	112	27	199
40	32	174	202	230	248	112	27	199
50	40	224	256	230	248	165	43	290
63	50	244	256	250	252	165	43	290
75	65	284	284	290	280	180	–	275
90	80	300	300	310	–	200	–	410
110	100	380	380	390	–	250	–	485

L = standard connection, Ls = IR butt fusion spigot, standard, for material PP/PVDF, L1 = with flange, L2 = with screw connection



The pressure relief valve can be set to a specified opening pressure at our plant if desired.

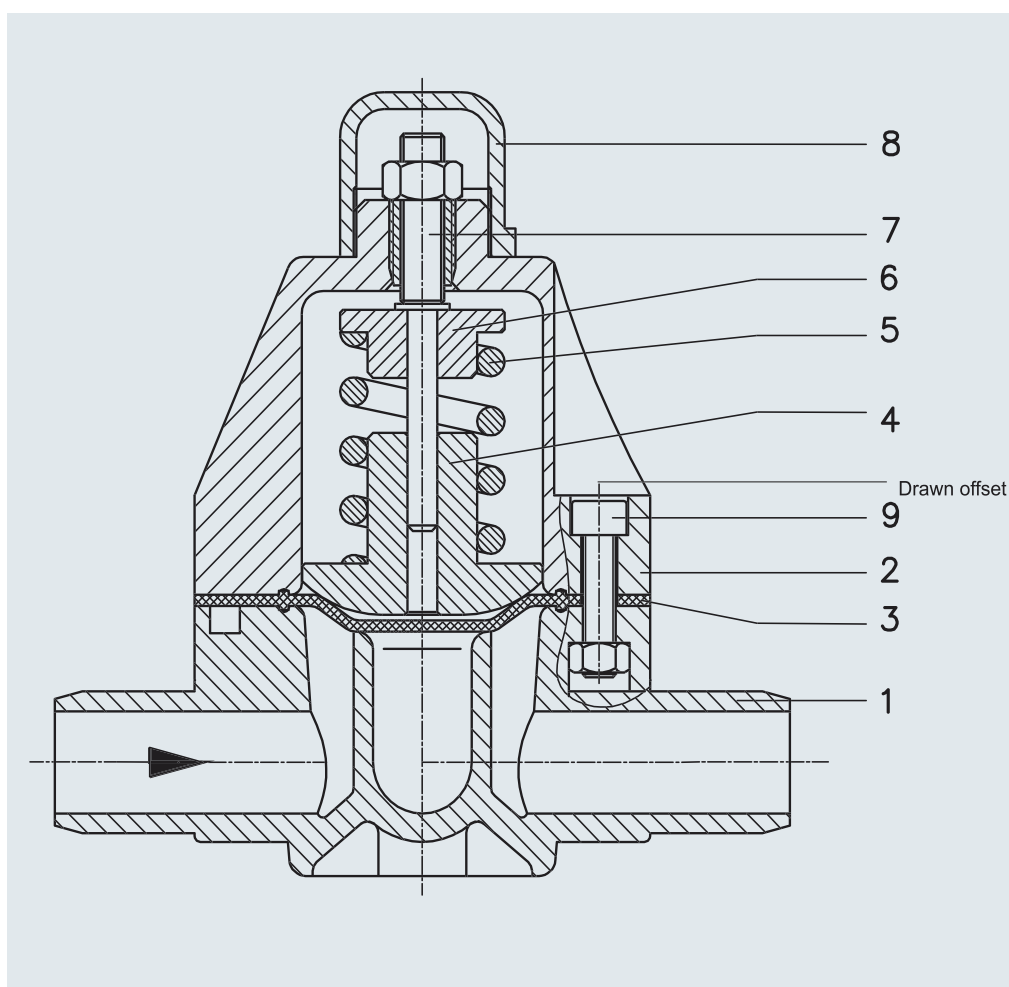
Pressure relief valve V 185 - V 85 . DN 10 à DN 100

ARTICLE NUMBERS

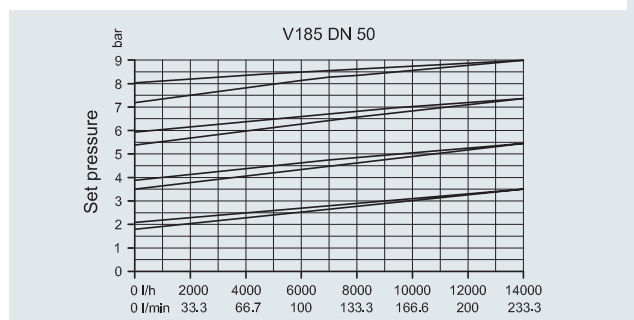
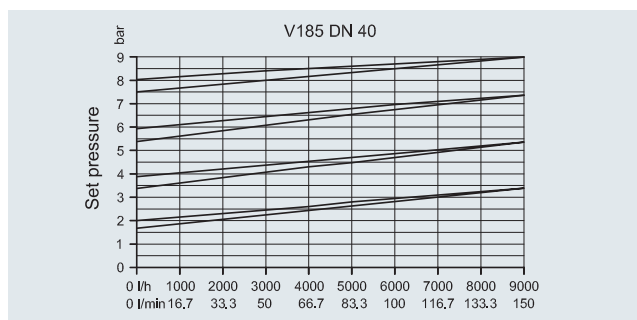
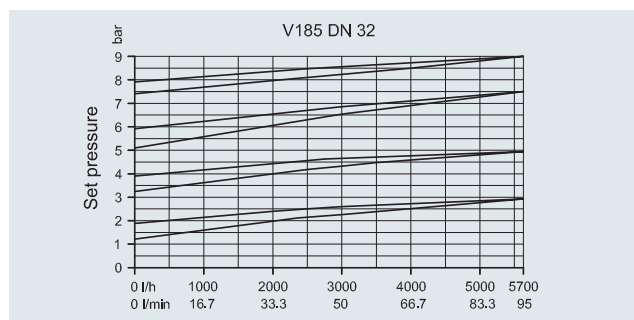
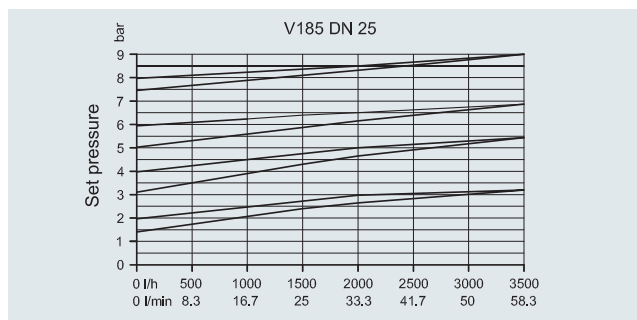
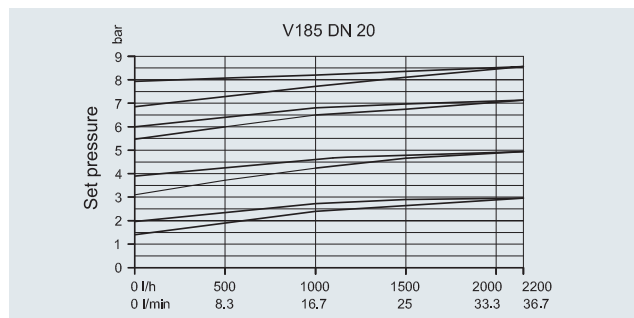
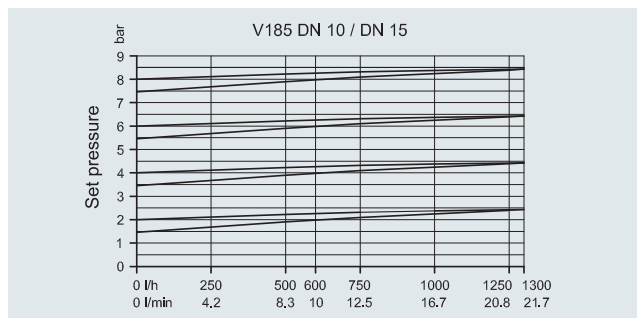
d	DN	Type	PVC/EPDM	PVC/PTFE	PP/EPDM IR-spigots	PP/PTFE IR-spigots	PVDF/PTFE IR-spigots
16	10	V 185	17.000.120	17.000.179	17.005.444	17.005.451	17.005.458
20	15	V 185	17.000.121	17.000.180	17.005.445	17.005.452	17.005.459
25	20	V 185	17.000.122	17.000.181	17.005.446	17.005.453	17.005.460
32	25	V 185	17.000.123	17.000.182	17.005.447	17.005.454	17.005.461
40	32	V 185	17.000.124	17.000.183	17.000.448	17.005.455	17.005.462
50	40	V 185	17.000.125	17.000.184	17.005.449	17.005.456	17.005.463
63	50	V 185	17.000.126	17.000.185	17.005.450	17.005.457	17.005.464
75	65	V 85	17.002.709	17.002.713	17.005.465	17.005.468	17.005.471
90	80	V 85	17.002.717	17.002.721	17.005.466	17.005.469	–
110	100	V 85	17.002.725	17.002.729	17.005.467	17.005.470	–

INDIVIDUAL PARTS

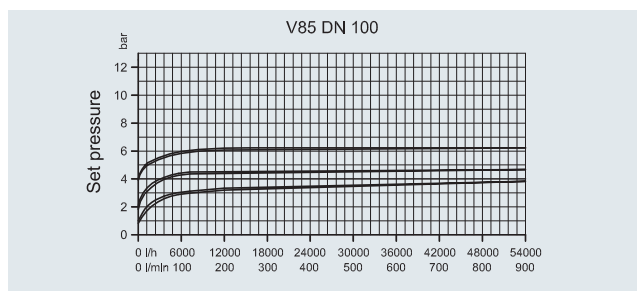
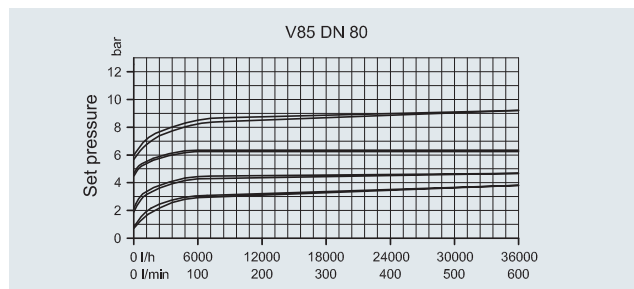
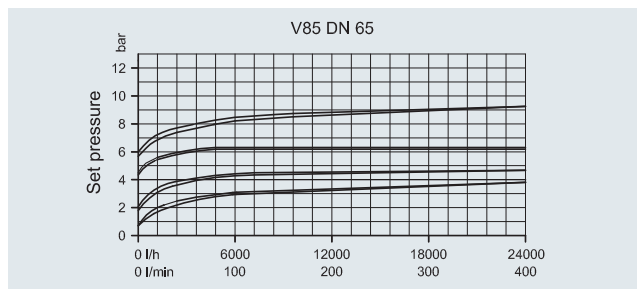
- Pos. Designation
- 1 Lower body
 - 2 Upper body
 - 3 Diaphragm
 - 4 Compressor
 - 5 Compressor spring
 - 6 Spring plate
 - 7 Adjustment screw
 - 8 Cap
 - 9 Set of screws



CHARACTERISTIC GRAPHS V 185



CHARACTERISTIC GRAPHS V 85



The characteristic curves on the graphs show the increase in the set pressure from 0 through to the maximum permissible flow rate. The upper and lower lines plot the course of the opening and closing pressure respectively. All characteristic curves apply to water at a temperature of 20 °C.

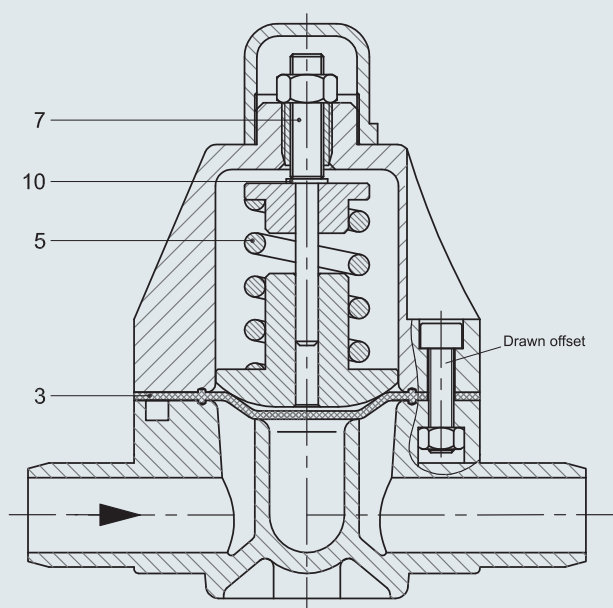
Pressure relief valve V 185 - V 85 . DN 10 à DN 100

SPARE PARTS SET FOR V 185 / V 85 PVC-U / PP / PVDF

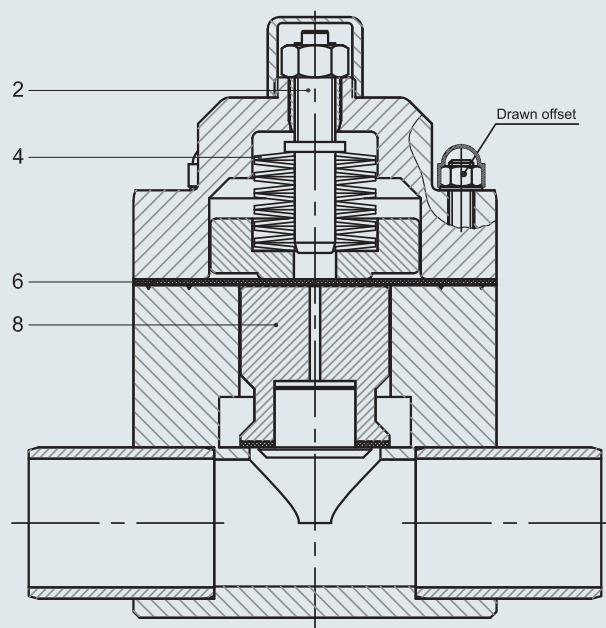
Set consisting of:	Type	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/PTFE Article No.
Pos. 3 diaphragm	V 185	10/15/20	17.006.007	17.006.020	17.006.007	17.006.020	17.006.020
Pos. 5 compression spring	V 185	25/32	17.006.008	17.006.021	17.006.008	17.006.021	17.006.021
Pos. 7 adjustment screw	V 185	40/50	17.006.009	17.006.022	17.006.009	17.006.022	17.006.022
Pos. 10 washer							

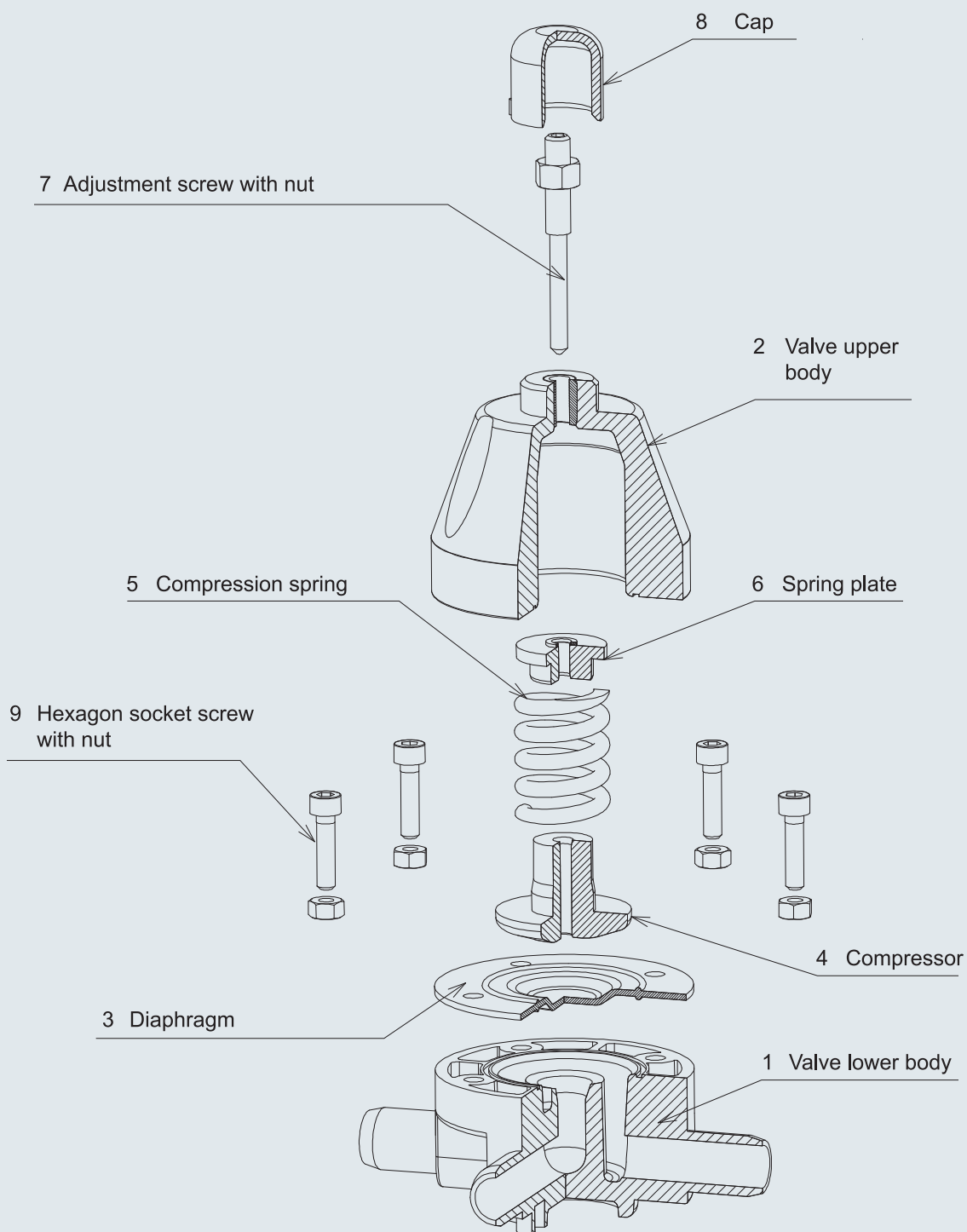
Set consisting of:	Type	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/PTFE Article No.
Pos. 6 diaphragm	V 85	65	17.006.140	17.006.143	17.006.262	17.006.265	17.006.274
Pos. 4 spring assembly	V 85	80	17.006.141	17.006.144	17.006.263	17.006.266	–
Pos. 2 adjustment screw	V 85	100	17.006.142	17.006.145	17.006.264	17.006.267	–
Pos. 8 piston, complete							

V 185



V 85





Pressure retaining valve V 186 - V 86

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions

Pressure retaining valve V 186 - V 86

Pressure retaining valve

V 186 · V 86

DN 10 to DN 100



V 186 PVDF



V 186 PP



V 186 PVC

USE

Pressure retaining valves V 186/V 86 are used where a constant back pressure is required for operating process systems. When installed as a bypass, it can also be used as a relief valve for reducing pressure peaks. The Type V 186 (DN 10-50) has an almost zero-static lower body that makes it particularly suitable for use in very high-purity water applications. The variety of available materials covers a wide range of applications.

FUNCTION

The set spring force presses the diaphragm onto the seal seat. If the system pressure exceeds the operating pressure value, the valve opens.

SPECIAL FEATURES

- All parts that come into contact with the medium are made of highly-resistant plastics
- The control diaphragm separates the actuating drive from the flow section
- The operating pressure is adjusted with an adjustment screw and is secured with a lock nut. The setting can also be lead sealed if required
- The shape of the housing that assists flow results in good flow values
- Control deviations are kept low by the large control surface and the spiral spring
- No auxiliary energy is required in order to operate the valve
- The valve is largely maintenance-free and can be installed in any position

MATERIALS

Housing	Permissible operating temperature	Diaphragm
PVC-U	0 to +60 °C	EPDM
PP	-10 to +80 °C	EPDM / PTFE coated
PVDF	-20 to +100 °C	

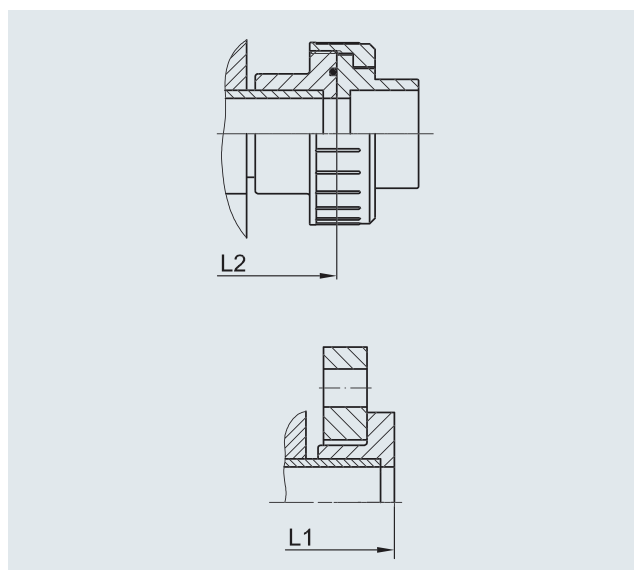
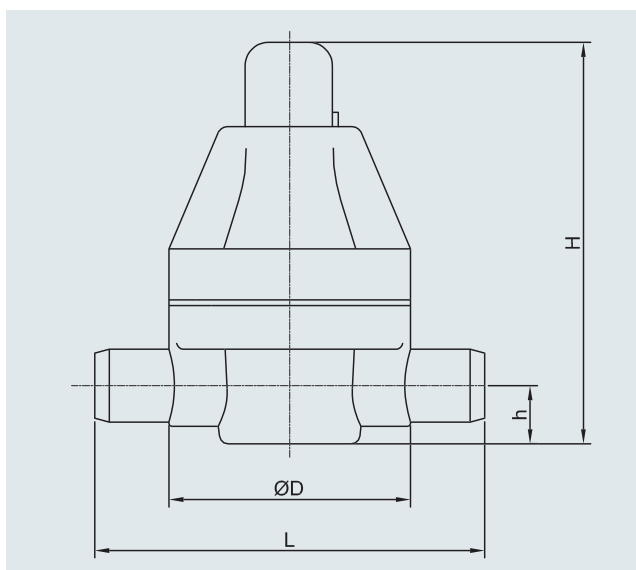
TECHNICAL DATA

Type	Size	PN	Pressure range in bar
V 186	DN 10-50	10	0.5-10
V 86	DN 65-80	6	1-6
	DN 100	4	1-4

DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	L	Ls	L1	L2	D	h	H
16	10	134	–	140	154	83	20	137
20	15	134	158	140	154	83	20	137
25	20	134	158	140	154	83	20	137
32	25	174	198	180	185	112	27	199
40	32	174	202	180	248	112	27	199
50	40	224	256	230	248	165	43	290
63	50	244	256	250	252	165	43	290
75	65	284	284	290	280	180	–	275
90	80	360	360	370	–	250	–	410
110	100	380	380	390	–	250	–	485

L = standard connection, Ls = IR butt fusion spigot, standard, for material PP/PVDF, L1 = with flange, L2 = with screw connection



The pressure retaining valve can be set to a specified opening pressure at our plant if desired.

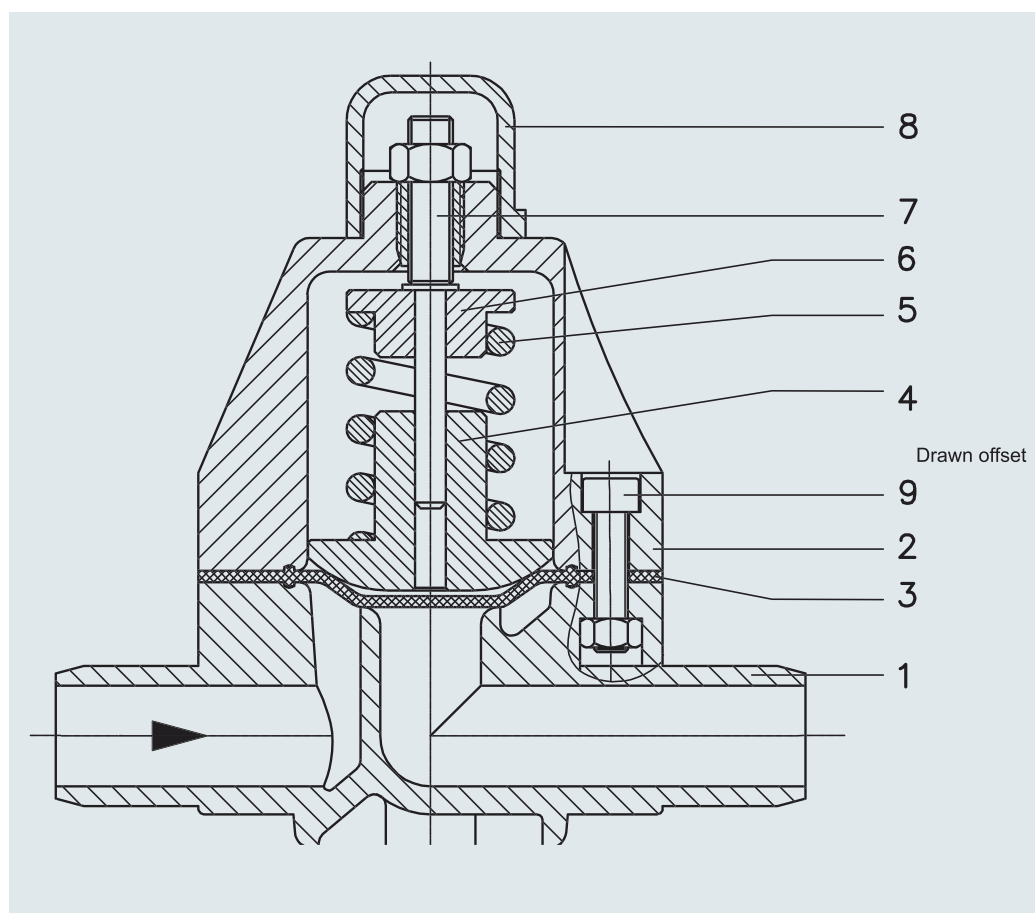
Pressure retaining valve V 186 - V 86

ARTICLE NUMBERS

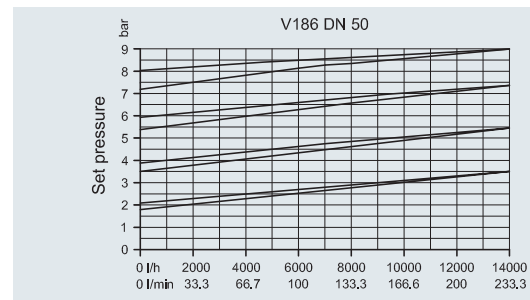
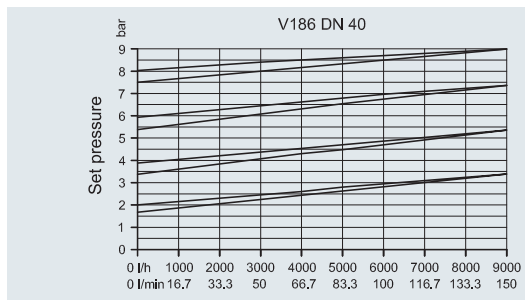
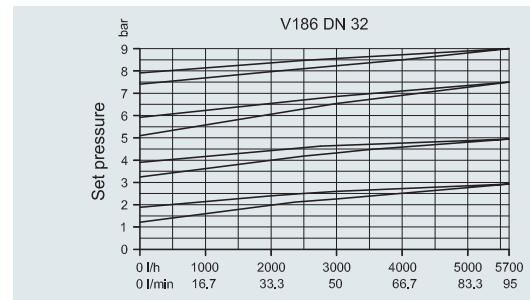
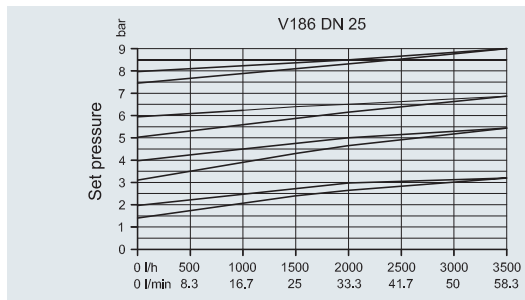
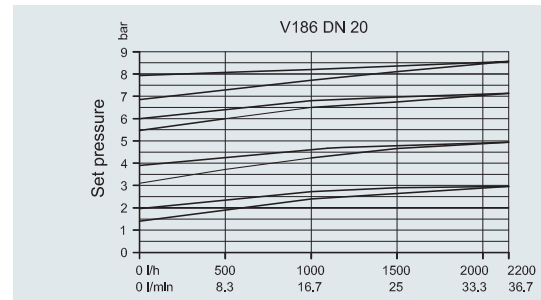
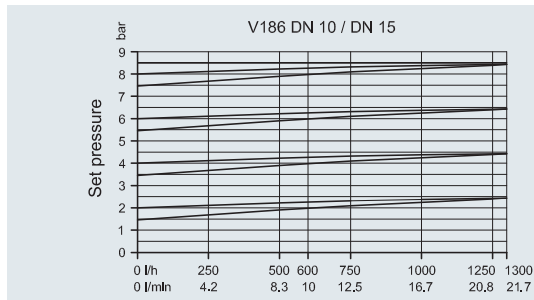
d	DN	Type	PVC/EPDM	PVC/PTFE	PP/EPDM IR-spigots	PP/PTFE IR-spigots	PVDF/PTFE IR-spigots
16	10	V 186	17.000.134	17.000.149	17.005.472	17.005.479	17.005.486
20	15	V 186	17.000.135	17.000.150	17.005.473	17.005.480	17.005.487
25	20	V 186	17.000.136	17.000.151	17.005.474	17.005.481	17.005.488
32	25	V 186	17.000.137	17.000.152	17.005.475	17.005.482	17.005.489
40	32	V 186	17.000.138	17.000.153	17.005.476	17.005.483	17.005.490
50	40	V 186	17.000.139	17.000.154	17.005.477	17.005.484	17.005.491
63	50	V 186	17.000.140	17.000.155	17.005.478	17.005.485	17.005.492
75	65	V 86	17.003.093	17.003.097	17.005.493	17.005.496	17.005.499
90	80	V 86	17.003.101	17.003.105	17.005.494	17.005.497	–
110	100	V 86	17.003.109	17.003.113	17.005.495	17.005.498	–

INDIVIDUAL PARTS

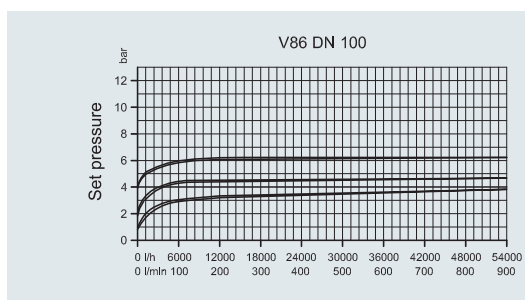
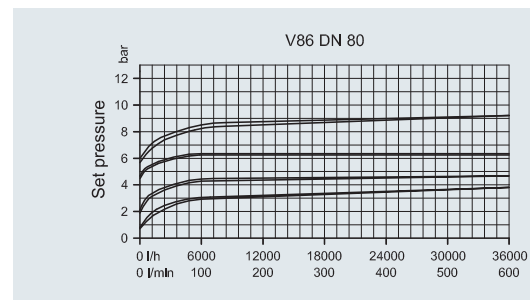
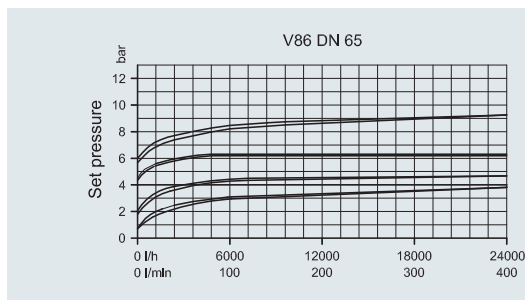
- Pos. Designation
- 1 Lower body
 - 2 Upper body
 - 3 Diaphragm
 - 4 Compressor
 - 5 Compression spring
 - 6 Spring plate
 - 7 Adjustment screw
 - 8 Cap
 - 9 Set of screws



CHARACTERISTIC GRAPHS V 186



CHARACTERISTIC GRAPHS V 86



The characteristic curves on the graphs show the increase in the set pressure from 0 through to the maximum permissible flow rate. The upper and lower lines plot the course of the opening and closing pressure respectively. All characteristic curves apply to water at a temperature of 20 °C.

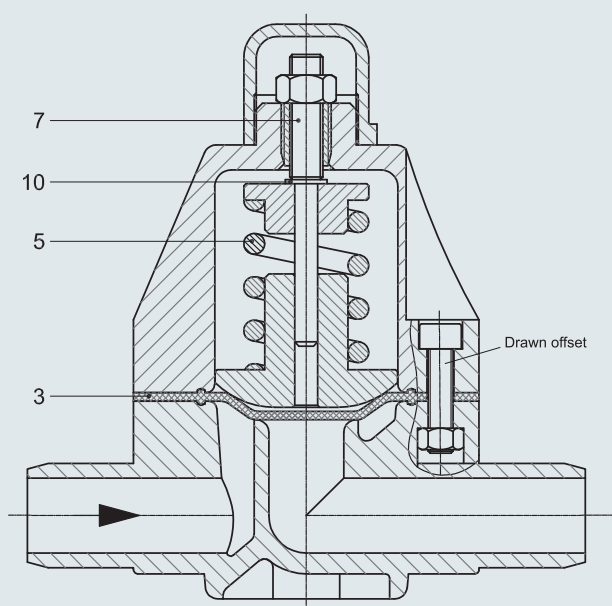
Pressure retaining valve V 186 - V 86

SPARE PARTS SET FOR V 186 / V 86 PVC-U / PP / PVDF

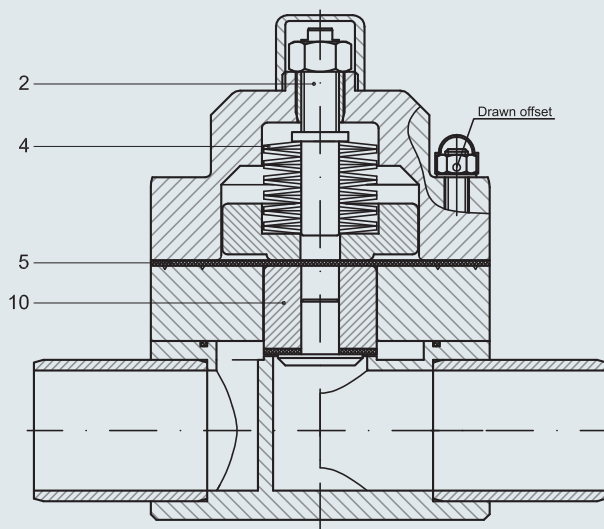
Set consisting of:	Type	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/PTFE Article No.
Pos. 3 diaphragm	V 186	10/15/20	17.006.007	17.006.020	17.006.007	17.006.020	17.006.020
Pos. 5 compression ring	V 186	25/32	17.006.008	17.006.021	17.006.008	17.006.021	17.006.021
Pos. 7 adjustment screw	V 186	40/50	17.006.009	17.006.022	17.006.009	17.006.022	17.006.022
Pos. 10 washer							

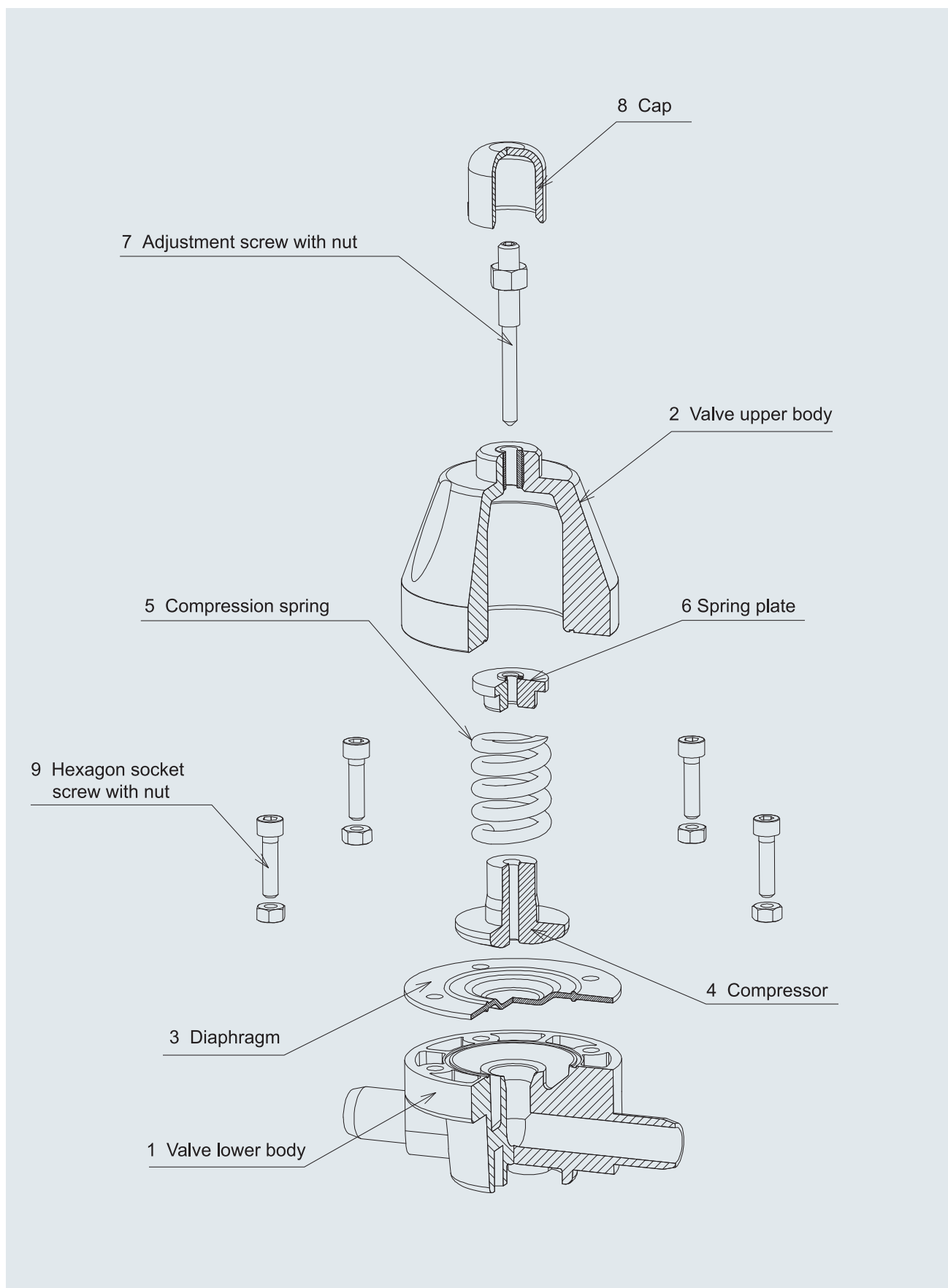
Set consisting of:	Type	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/PTFE Article No.
Pos. 5 diaphragm	V 86	65	17.006.256	17.006.259	17.006.268	17.006.271	17.006.275
Pos. 4 spring assembly	V 86	80	17.006.257	17.006.260	17.006.269	17.006.272	–
Pos. 2 adjustment screw	V 86	100	17.006.258	17.006.261	17.006.270	17.006.273	–
Pos. 10 piston, complete							

V 186



V 86





Pressure retaining valve v 786

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions



Pressure retaining valve v 786



V786 PVDF



V786 PP



V786 PVC

USE

Pressure retaining valves are normally used where a constant pressure is required in a system. The pressure retaining valve regulates the pressure upstream of the valve to the setpoint value.

FUNCTION

The set spring force presses the piston onto the seal seat. If the system pressure exceeds the operating pressure value, the valve opens.

SPECIAL FEATURES

- All parts that come into contact with the medium are made of highly-resistant plastics
- The control diaphragm separates the actuating drive from the flow section
- The operating pressure is adjusted with an adjustment screw and is secured with a lock nut. The setting can also be lead sealed if required
- The shape of the housing that assists flow results in good flow values
- Control deviations are kept low by the large control surface and the spiral spring
- No auxiliary energy is required in order to operate the valve
- The valve is largely maintenance-free and can be installed in any position

MATERIALS

Housing	Premissible operating temperature	Diaphragm /seal
PVC	o to +60 °C	EPDM or EPDM/PTFE coated
PP	- 10 to +80 °C	EPDM or EPDM/PTFE coated
PVDF	- 20 to + 100 °C	EPDM/PTFE coated

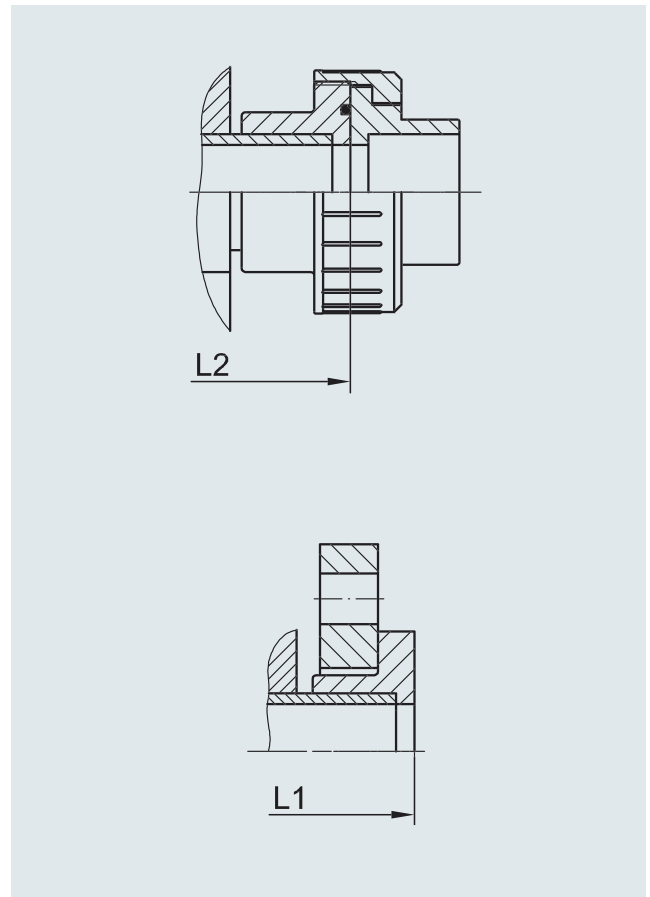
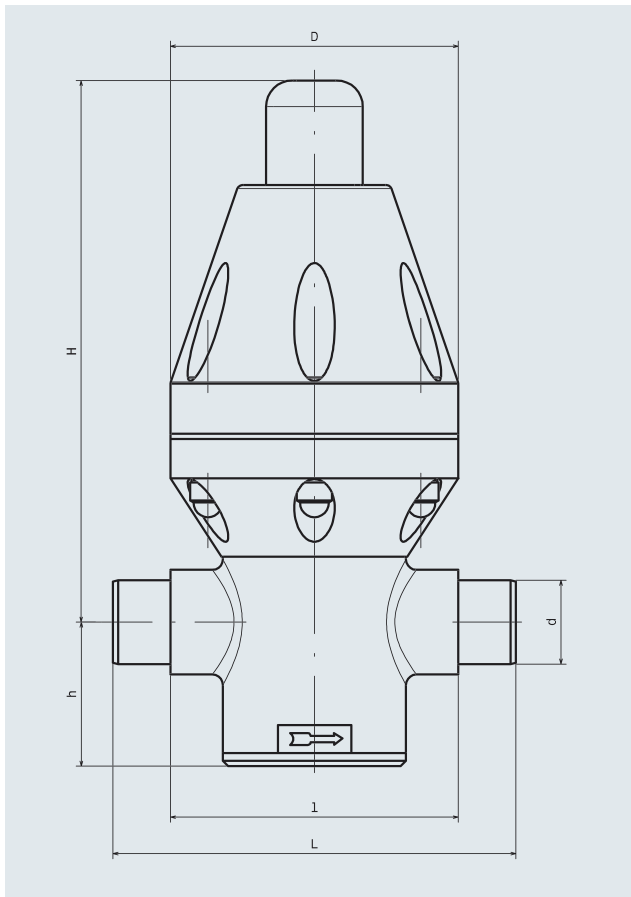
TECHNICAL DATA

Type	Size	PN	Adjustment range in bar
V786	DN 10-25	10	0.5 - 10 bar
	DN 32-40	4	0.5-4 bar

DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	L	Ls	L1	L2	I	H	h	D
16	10	134	—	140	154	102	138	38	83
20	15	134	172	140	154	102	138	38	83
25	20	154	190	160	174	110	200	55	112
32	25	154	190	160	174	110	200	55	112
40	32	224	262	230	248	162	248	85	165
50	40	224	262	230	252	162	248	85	165

L = standard connection, Ls = IR butt fusion spigot, L1 = with flange, L2 = with screw connection



The pressure retaining valve can be set to a specified opening pressure at our plant if desired.

Pressure retaining valve v 786

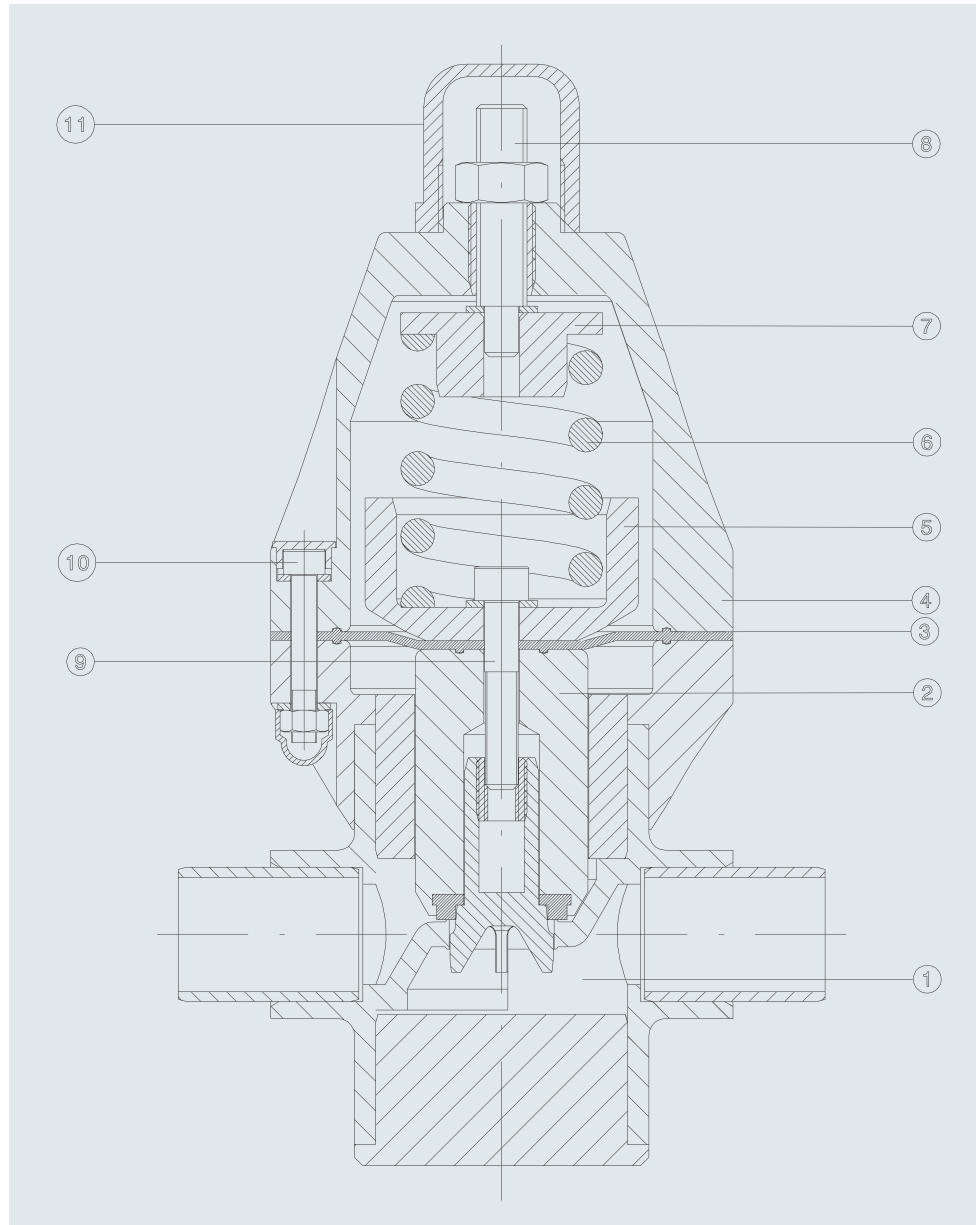
ARTICLE NUMBERS

d	DN	Adjustment range in bar	PVC/EPDM	PVC/PTFE	PP/EPDM IR-spigots	PP/PTFE IR-spigots	PVDF/PTFE IR-spigots
16	10	0.5 - 10	17.001.016	17.002.145	17.000.997	17.002.151	17.000.987
20	15	0.5 - 10	17.001.013	17.002.146	17.000.999	17.002.152	17.000.985
25	20	0.5 - 10	17.001.021	17.002.147	17.001.002	17.002.153	17.000.991
32	25	0.5 - 10	17.001.024	17.002.148	17.001.001	17.002.154	17.000.990
40	32	0.5 - 4	17.001.025	17.002.149	17.001.010	17.002.155	17.000.993
50	40	0.5 - 4	17.001.028	17.002.150	17.001.007	17.002.156	17.000.995

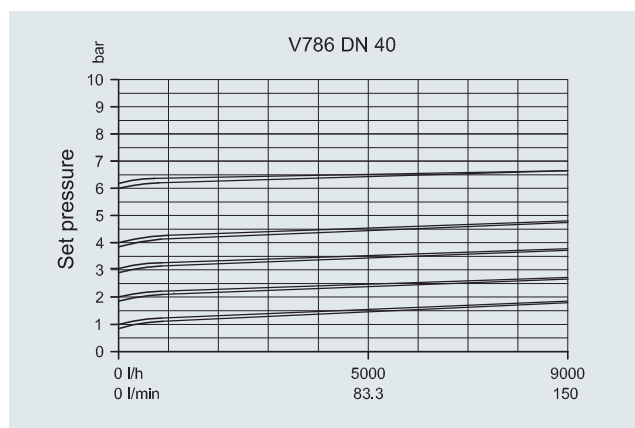
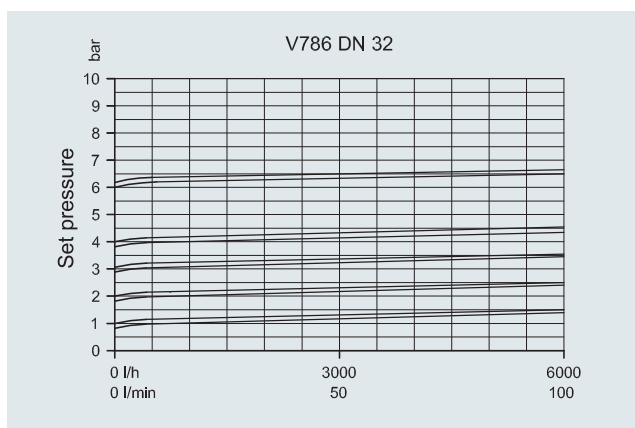
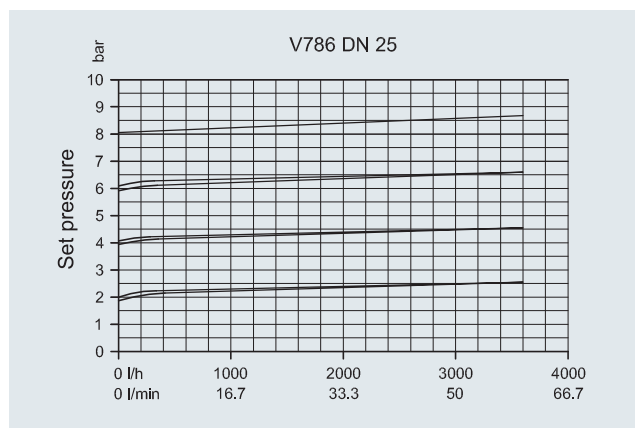
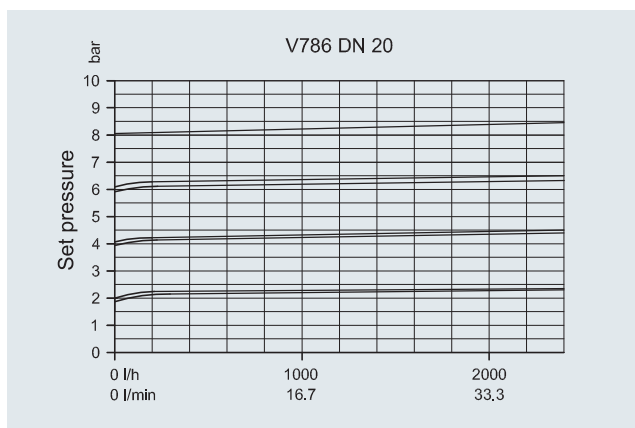
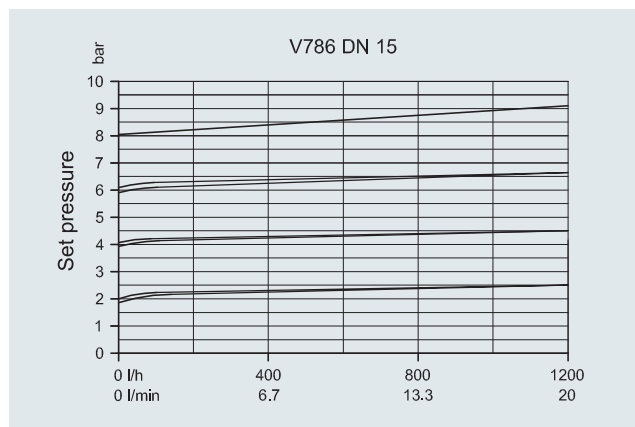
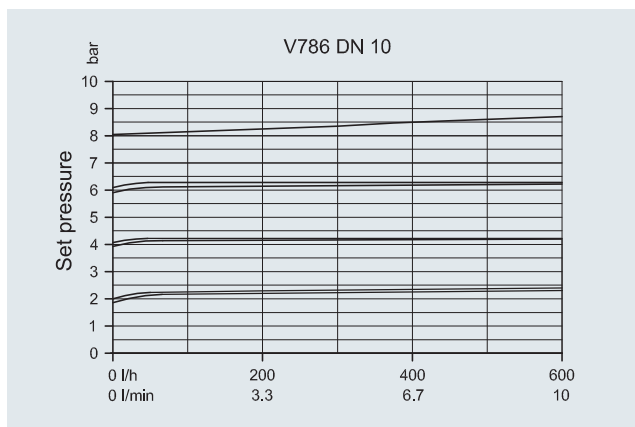
Other materials and connections on request.

INDIVIDUAL PARTS

- | | |
|------|---------------------------------------|
| Pos. | Designation |
| 1 | Valve lower body |
| 2 | Piston, complete |
| 3 | Diaphragm |
| 4 | Valve upper body |
| 5 | Compression plate |
| 6 | Compression spring |
| 7 | Spring plate |
| 8 | Adjustment screw, complete |
| 9 | Hexagon socket screw |
| 10 | Hexagon socket screw with nut and cap |
| 11 | Cap |



CHARACTERISTIC GRAPHS V 786

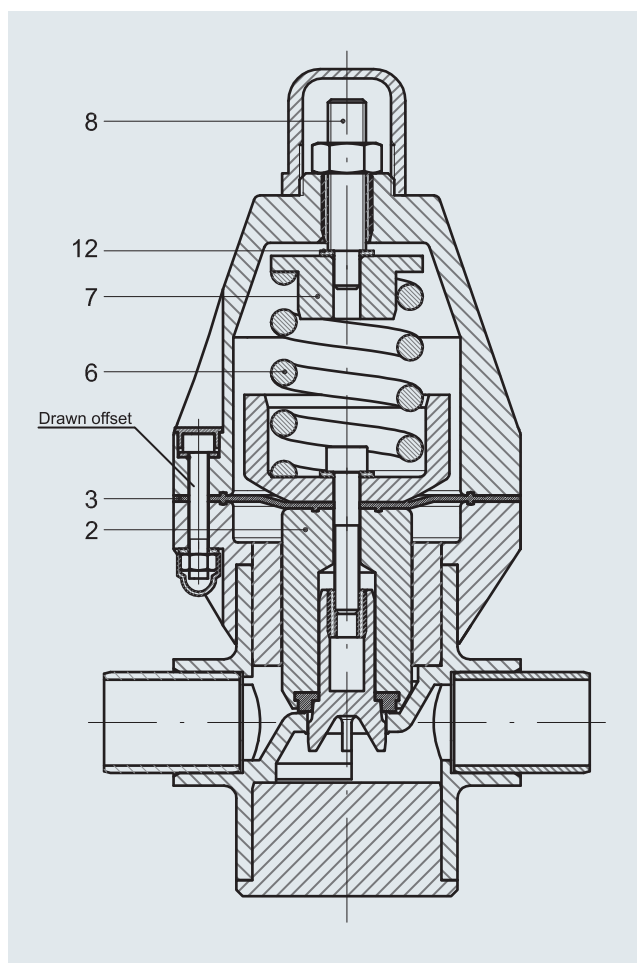


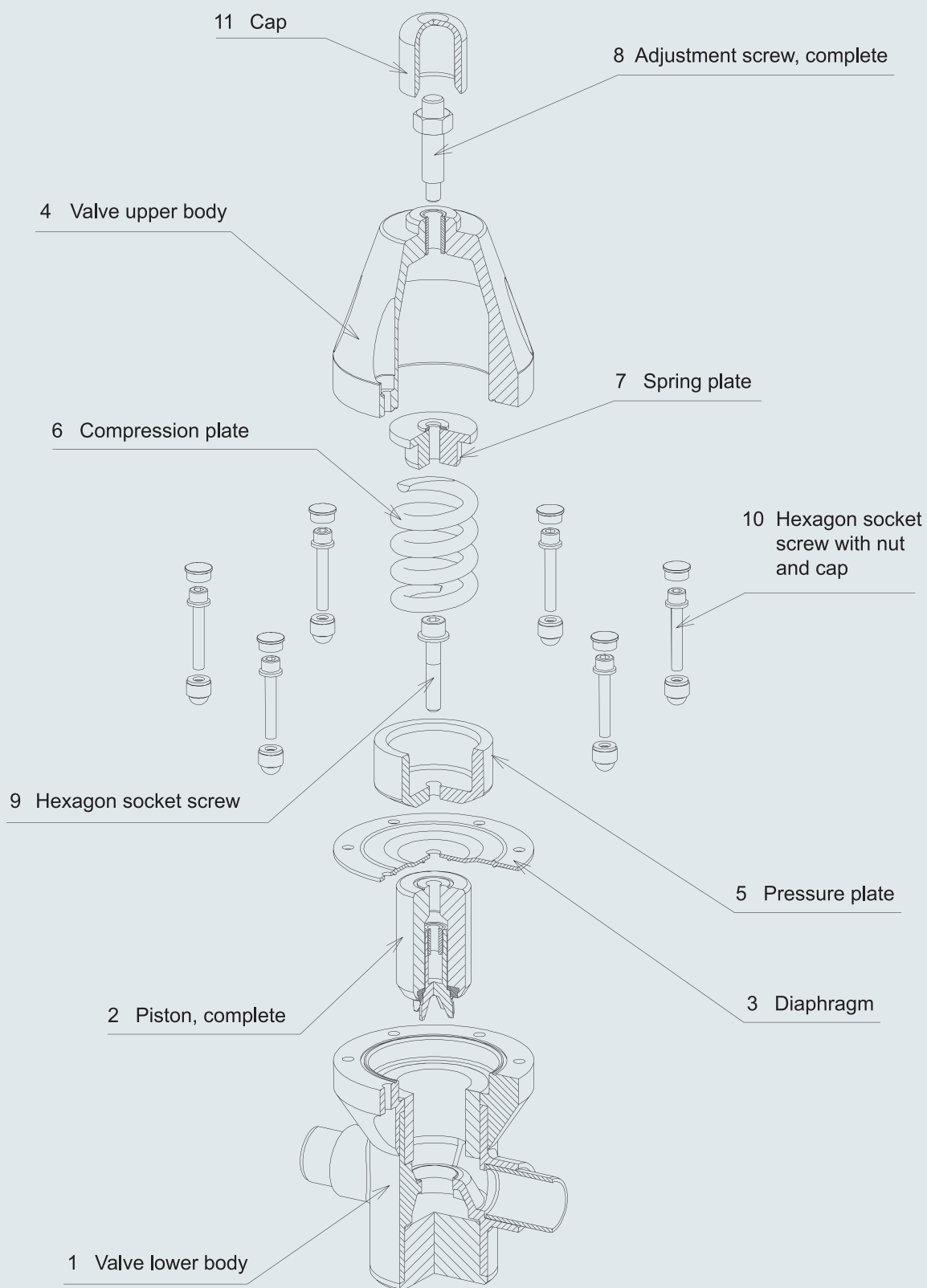
The characteristic curves on the graphs show the increase in the set pressure from 0 through to the maximum permissible flow rate. The upper and lower lines plot the course of the opening and closing pressure respectively. All characteristic curves apply to water at a temperature of 20 °C.

Pressure retaining valve v 786

SPARE PARTS SET FOR V 786 PVC-U / PP / PVDF

Set consisting of:	DN	PVC/EPDM Article No.	PVC/PTFE Article No.	PP/EPDM Article No.	PP/PTFE Article No.	PVDF/PTFE Article No.
Pos. 2 piston, complete	10/15	17.006.146	17.006.149	17.006.152	17.006.155	17.006.158
Pos. 3 diaphragm	20/25	17.006.147	17.006.150	17.006.153	17.006.156	17.006.159
Pos. 6 compression spring	32/40	17.006.148	17.006.151	17.006.154	17.006.157	17.006.160
Pos. 7 spring plate						
Pos. 8 adjustment screw						
Pos. 12 washer						





Diaphragm pressure gauge guard

Z 800 - Z 801

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions

Diaphragm pressure gauge guard Z 800 - Z 801



Z 800 PP



Z 800 PVC



Z 800 PVDF



Z 801 PP



Z 801 PVC



Z 801 PVDF

APPLICATION

The diaphragm pressure gauge guard is applicable to measure pressure of neutral and aggressive media. The pressure gauge is separated from the medium by a TFM overlaid EPDM diaphragm. Pressure will be transmitted by a buffer fluid. The large diaphragm surface and the incompressibility of the buffer fluid allows an high accurate pressure transmission. The variety of possible materials covers a wide range of applications.

SPECIAL FEATURES

- All medium wetted parts are made of high resistant plastic
- Pressure gauge does not have contact with the medium
- Pressure guard is maintenance-free
- Variable installation position
- Large size diaphragm surface provides high accuracy
- The unique coupling nut design impedes any torsion on the diaphragm that guarantees an high precise pressure transmission
- The new design assures an uniform sealing pressure on the diaphragm
- Various connecting options are available by changing of the base part

TECHNICAL DATA

Available materials	upper part and union nut in PP GF30 lower part in PP, PVC, PVDF diaphragm EPDM/TFM coated glysantine or distilled water PN 10 by 20°C (145psig by 68°F)
Buffer fluid	
Max. operating temp.	
Pressure gauge connects	G 1/4" and G 1/2"
Connection spigot	female thread G, 1/4" / 1/2" PP, PVC, PVDF female thread NPT, 1/4" / 1/2" PP, PVC, PVDF bonded nozzle d25/d32 in PVC IR-welded hexagon nipple d25 / d32 PP, PVDF
Pressure gauge range	Standard 0-10 bar eff. (0 – 145 psig) with R 1/4" Ø63 mm (2-3/8") with R 1/2" Ø100 mm, (4") others on request
Accuracy	Standard class 1,6

PART LIST

Item	Description
1	Lower part (PP, PVC and PVDF)
2	Union nut
3	EPDM/TFM coated diaphragm
4	Upper part
5	Pressure gauge sealing
6	Pressure gauge

We reserve the right to make changes

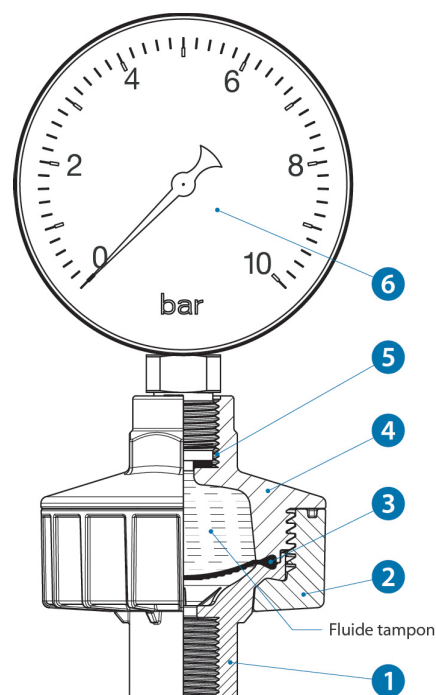
Filling the buffer fluid :

- Upper body (Item 4) of the pressure gauge guard Z800/Z801-fill preferably with Glysantine, or distilled water up to the lower edge of the threaded socket.
- Move smoothly (up and down) the diaphragm from below using a blunt object until no more air bubbles appear
- Screw in the pressure gauge
- If the pressure gauge already display a pressure, some buffer fluid has to be removed until there is no pressure displayed

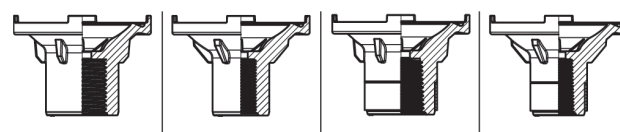
Installing instructions :

We recommend to install the pressure gauge guard in a vertical position with a previous screwed connection and a shut-off-device. This ensures that the pressure gauge can be brought into the desired read-off position and an easy replacement is possible.

Various pressure gauges are as option available.

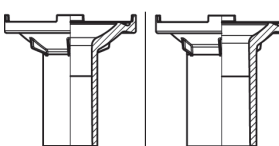


THREADED FEMALE CONNECTIONS



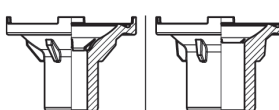
G 1/2"	G 1/4"	NPT 1/2"	NPT 1/4"
PP	72	71	63
PVC	100	90	100
PVDF	PVDF	PVDF	PVDF

FUSION SPIGOT

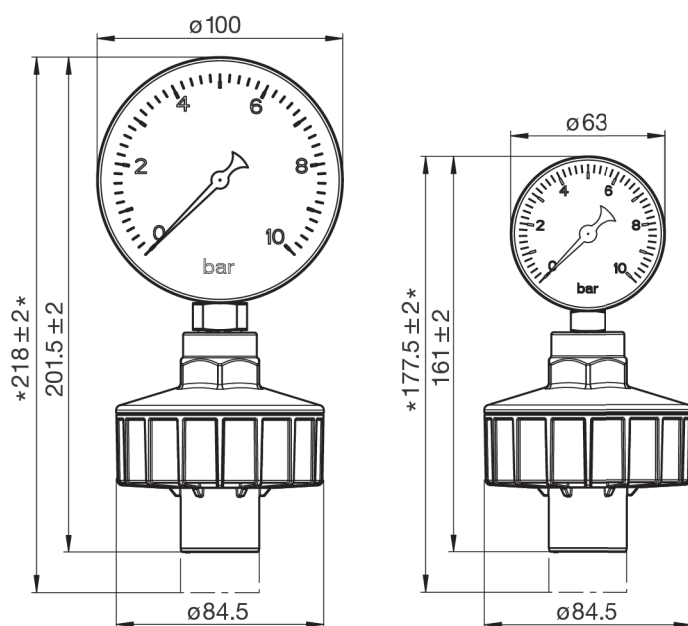


d25	d32
PP	PP
PVDF	PVDF

ADHESIVE SPIGOT



d25	d32
PVC	PVC



The technical data is non-binding. It is not to be regarded as representing assured properties or as a guarantee of quality or durability. We reserve the right to make changes. Our general terms of sale apply.

Diaphragm pressure gauge guard Z 800 - Z 801

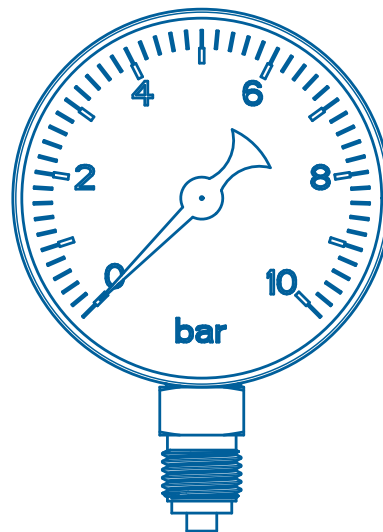
DIAPHRAGM PRESSURE GAUGE GUARD Z801 (WITHOUT PRESSURE GAUGE)

PVC		PP		PVDF	
	Article no.		Article no.		Article no.
Z801 PVC G1/4" G1/4"	17.801.101	Z801 PP G1/4" G1/4"	17.801.201	Z801 PVDF G1/4" G1/4"	17.801.301
Z801 PVC G1/4" G1/2"	17.801.102	Z801 PP G1/4" G1/2"	17.801.202	Z801 PVDF G1/4" G1/2"	17.801.302
Z801 PVC G1/4" NPT1/4"	17.801.103	Z801 PP G1/4" NPT1/4"	17.801.203	Z801 PVDF G1/4" NPT1/4"	17.801.303
Z801 PVC G1/4" NPT1/2"	17.801.104	Z801 PP G1/4" NPT1/2"	17.801.204	Z801 PVDF G1/4" NPT1/2"	17.801.304
Z801 PVC G1/4" d25	17.801.105	Z801 PP G1/4" IR d25	17.801.205	Z801 PVDF G1/4" IR d25	17.801.305
Z801 PVC G1/4" d32	17.801.106	Z801 PP G1/4" IR d32	17.801.206	Z801 PVDF G1/4" IR d32	17.801.306
Z801 PVC G1/2" G1/4"	17.801.150	Z801 PP G1/2" G1/4"	17.801.250	Z801 PVDF G1/2" G1/4"	17.801.350
Z801 PVC G1/2" G1/2"	17.801.151	Z801 PP G1/2" G1/2"	17.801.251	Z801 PVDF G1/2" G1/2"	17.801.351
Z801 PVC G1/2" NPT1/4"	17.801.152	Z801 PP G1/2" NPT1/4"	17.801.252	Z801 PVDF G1/2" NPT1/4"	17.801.352
Z801 PVC G1/2" NPT1/2"	17.801.153	Z801 PP G1/2" NPT1/2"	17.801.253	Z801 PVDF G1/2" NPT1/2"	17.801.353
Z801 PVC G1/2" d25	17.801.154	Z801 PP G1/2" IR d25	17.801.254	Z801 PVDF G1/2" IR d25	17.801.354
Z801 PVC G1/2" d32	17.801.155	Z801 PP G1/2" IR d32	17.801.255	Z801 PVDF G1/2" IR d32	17.801.355

DIAPHRAGM PRESSURE GAUGE GUARD Z800 (WITH PRESSURE GAUGE)

PVC		PP		PVDF	
	Article no.		Article no.		Article no.
Z800 PVC G1/4" G1/4" 0-10	17.800.101	Z800 PP G1/4" G1/4" 0-10	17.800.201	Z800 PVDF G1/4" G1/4" 0-10	17.800.301
Z800 PVC G1/4" G1/4" 0-6	17.800.102	Z800 PP G1/4" G1/4" 0-6	17.800.202	Z800 PVDF G1/4" G1/4" 0-6	17.800.302
Z800 PVC G1/4" G1/2" 0-10	17.800.103	Z800 PP G1/4" G1/2" 0-10	17.800.203	Z800 PVDF G1/4" G1/2" 0-10	17.800.303
Z800 PVC G1/4" G1/2" 0-6	17.800.104	Z800 PP G1/4" G1/2" 0-6	17.800.204	Z800 PVDF G1/4" G1/2" 0-6	17.800.304
Z800 PVC G1/4" NPT1/4" 0-10	17.800.105	Z800 PP G1/4" NPT1/4" 0-10	17.800.205	Z800 PVDF G1/4" NPT1/4" 0-10	17.800.305
Z800 PVC G1/4" NPT1/4" 0-6	17.800.106	Z800 PP G1/4" NPT1/4" 0-6	17.800.206	Z800 PVDF G1/4" NPT1/4" 0-6	17.800.306
Z800 PVC G1/4" NPT1/2" 0-10	17.800.107	Z800 PP G1/4" NPT1/2" 0-10	17.800.207	Z800 PVDF G1/4" NPT1/2" 0-10	17.800.307
Z800 PVC G1/4" NPT1/2" 0-6	17.800.108	Z800 PP G1/4" NPT1/2" 0-6	17.800.208	Z800 PVDF G1/4" NPT1/2" 0-6	17.800.308
Z800 PVC G1/4" d25 0-10	17.800.109	Z800 PP G1/4" IR d25 0-10	17.800.209	Z800 PVDF G1/4" IR d25 0-10	17.800.309
Z800 PVC G1/4" d25 0-6	17.800.110	Z800 PP G1/4" IR d25 0-6	17.800.210	Z800 PVDF G1/4" IR d25 0-6	17.800.310
Z800 PVC G1/4" d32 0-10	17.800.111	Z800 PP G1/4" IR d32 0-10	17.800.211	Z800 PVDF G1/4" IR d32 0-10	17.800.311
Z800 PVC G1/4" d32 0-6	17.800.112	Z800 PP G1/4" IR d32 0-6	17.800.212	Z800 PVDF G1/4" IR d32 0-6	17.800.312
Z800 PVC G1/2" G1/4" 0-10	17.800.150	Z800 PP G1/2" G1/4" 0-10	17.800.250	Z800 PVDF G1/2" G1/4" 0-10	17.800.350
Z800 PVC G1/2" G1/4" 0-6	17.800.151	Z800 PP G1/2" G1/4" 0-6	17.800.251	Z800 PVDF G1/2" G1/4" 0-6	17.800.351
Z800 PVC G1/2" G1/2" 0-10	17.800.152	Z800 PP G1/2" G1/2" 0-10	17.800.252	Z800 PVDF G1/2" G1/2" 0-10	17.800.352
Z800 PVC G1/2" G1/2" 0-6	17.800.153	Z800 PP G1/2" G1/2" 0-6	17.800.253	Z800 PVDF G1/2" G1/2" 0-6	17.800.353
Z800 PVC G1/2" NPT1/4" 0-10	17.800.154	Z800 PP G1/2" NPT1/4" 0-10	17.800.254	Z800 PVDF G1/2" NPT1/4" 0-10	17.800.354
Z800 PVC G1/2" NPT1/4" 0-6	17.800.155	Z800 PP G1/2" NPT1/4" 0-6	17.800.255	Z800 PVDF G1/2" NPT1/4" 0-6	17.800.355
Z800 PVC G1/2" NPT1/2" 0-10	17.800.156	Z800 PP G1/2" NPT1/2" 0-10	17.800.256	Z800 PVDF G1/2" NPT1/2" 0-10	17.800.356
Z800 PVC G1/2" NPT1/2" 0-6	17.800.157	Z800 PP G1/2" NPT1/2" 0-6	17.800.257	Z800 PVDF G1/2" NPT1/2" 0-6	17.800.357
Z800 PVC G1/2" d25 0-10	17.800.158	Z800 PP G1/2" IR d25 0-10	17.800.258	Z800 PVDF G1/2" IR d25 0-10	17.800.358
Z800 PVC G1/2" d25 0-6	17.800.159	Z800 PP G1/2" IR d25 0-6	17.800.259	Z800 PVDF G1/2" IR d25 0-6	17.800.359
Z800 PVC G1/2" d32 0-10	17.800.160	Z800 PP G1/2" IR d32 0-10	17.800.260	Z800 PVDF G1/2" IR d32 0-10	17.800.360
Z800 PVC G1/2" d32 0-6	17.800.161	Z800 PP G1/2" IR d32 0-6	17.800.261	Z800 PVDF G1/2" IR d32 0-6	17.800.361

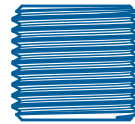
Pressure gauge



Pressure gauge sealing 1/4"



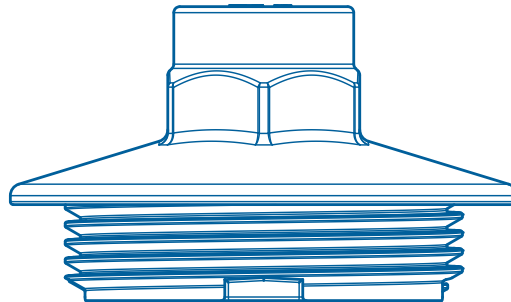
Thread reduction G1/2"-G1/4"



Pressure gauge sealing 1/2"



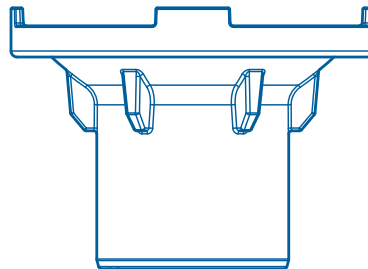
Upper part



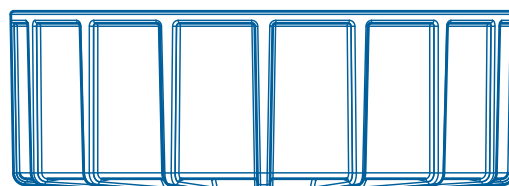
Diaphragm



Lower part



Union nut



Water jet pump P 20

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions

Water jet pump P 20 . DN 10 to DN 80



P 20 PVDF



P 20 PP



P 20 PVC

USE

Water jet liquid pumps can be used where pressurised liquid is present as the propellant. They are used for pumping out sumps, for transporting and mixing chemical waste water, for adding acids or alkalis in water treatment etc. They are self-priming and have no mechanical moving parts.

Since P20 water jet pumps are available in various materials, they can be used where the materials meet the specified requirements.

FUNCTION

The basic principle of the water jet pump is that the propellant emerges from a nozzle and brings with it the liquid or gaseous medium out of the suction line, speeding it up at the same time. The result of this process is a mixture of the propelling medium and the drawn-in medium.

The propelled volume is a function of the propulsion pressure and the nozzle hole size. The drawn-in volume can be seen in the diagrams. The stated capacities are guideline values only, and vary depending on the operating conditions.

Types

DN 10-DN 20 with male threads and union nut and insert

DN 25-DN 50 with screw connections

DN 65-DN 80 with adhesive spigots

MATERIALS

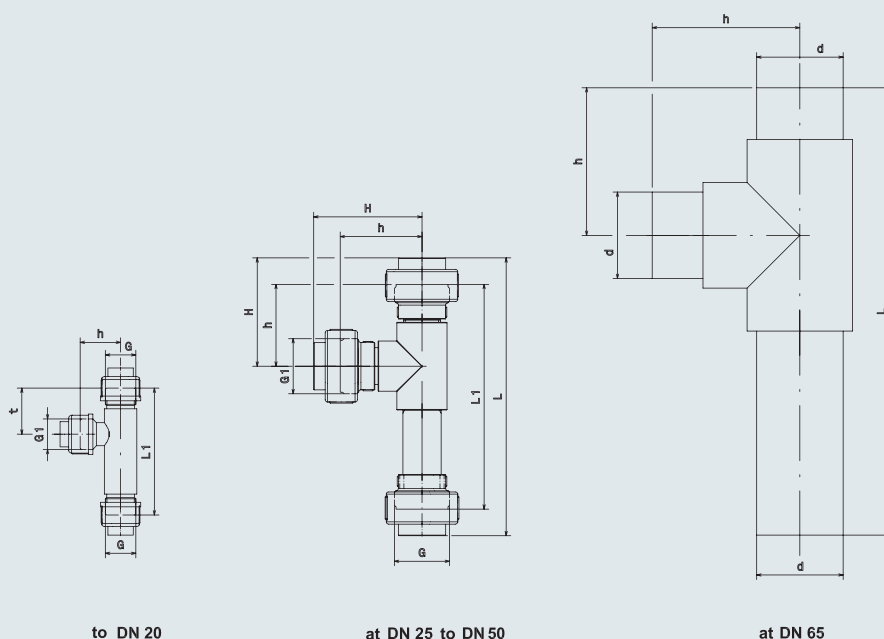
Housing	Permissible operating temperature
PVC	0 to +60 °C
PP	-10 to +80 °C
PVDF	-20 to +100 °C

Operating pressure: max. 10 bar at 20 °C

DIMENSIONS IN MM (GUIDELINE VALUES)

Type	NO*	d	DN	G	G1	L	L1	t	H	h
P 20.10-1.0 P 20.10-2.0		16	10	R 3/4"	R 3/4"	–	110	40	–	–
P 20.15-2.0 P 20.15-3.0 P 20.15-4.0		20	15	R 1"	R 3/4"	–	125	40	–	–
P 20.20-3.0 P 20.20-4.5 P 20.20-6.0		25	20	R 1 1/4"	R 3/4"	–	145	45	–	–
P 20.25-2.5 P 20.25-4.0 P 20.25-5.0		32	25	R 1 1/2"	R 1 1/2"	245	195	–	96	–
P 20.32-3.0 P 20.32-4.5 P 20.32-6.0		40	32	R 2"	R 2"	297	239	–	116	–
P 20.40-3.5 P 20.40-5.5 P 20.40-7.5		50	40	R 2 1/4"	R 2 1/4"	369	301	–	139	–
P 20.50-5.0 P 20.50-7.0 P 20.50-9.0		63	50	R 2 3/4"	R 2 3/4"	433	351	–	169	–
P 20.65-6.5 P 20.65-9.0 P 20.65-11.5		75	65	–	–	388	–	–	–	115
P 20.80-8.0 P 20.80-11.0 P 20.80-14.0		90	80	–	–	465	–	–	–	149

* Nozzle bore (mm)



Water jet pump P 20 . DN 10 to DN 80

ARTICLE NUMBERS

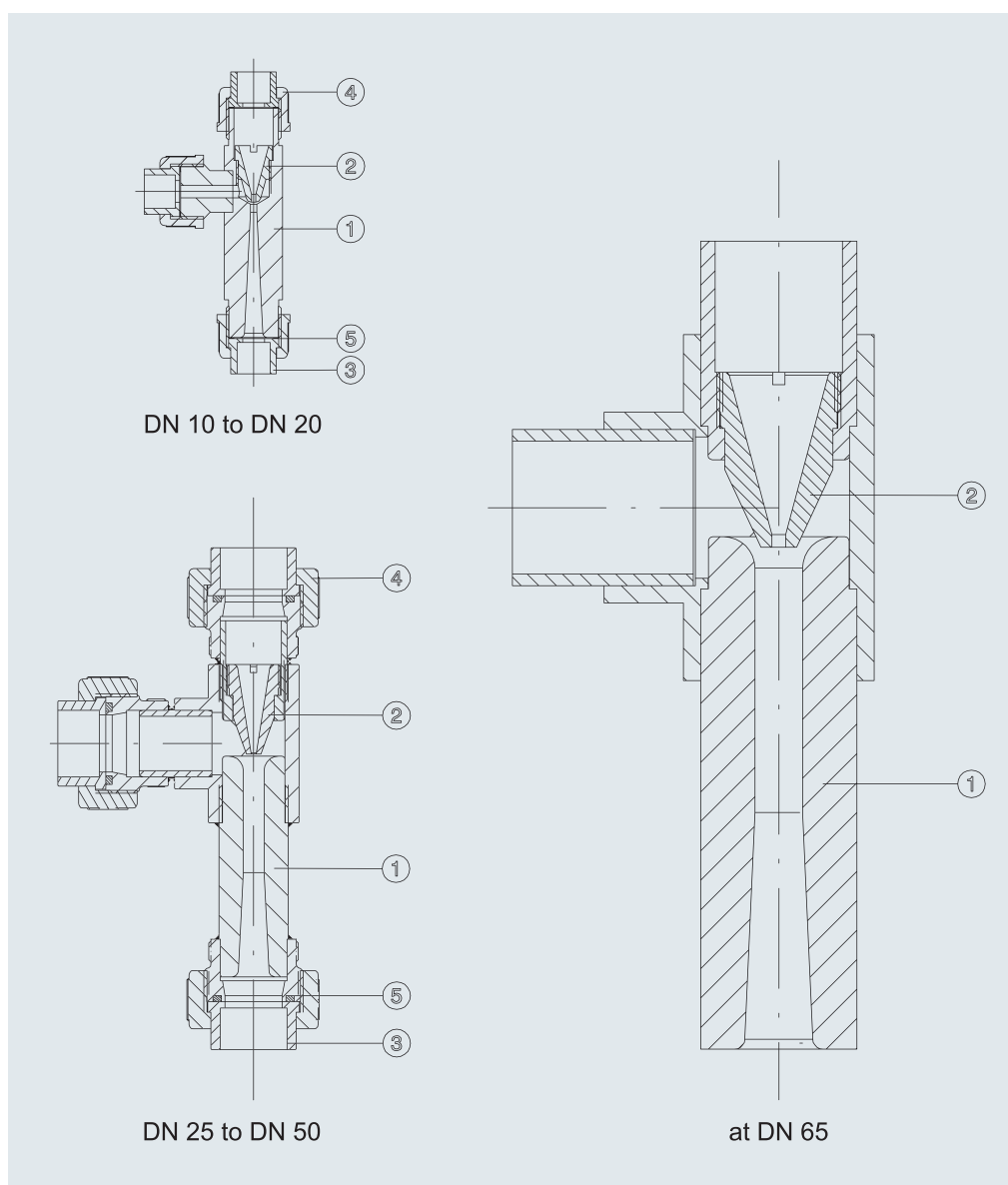
d	DN	PVC	PP	PVDF
16	10	17.002.118	17.002.127	17.002.136
20	15	17.002.119	17.002.128	17.002.137
25	20	17.002.120	17.002.129	17.002.138
32	25	17.002.121	17.002.130	17.002.139
40	32	17.002.122	17.002.131	17.002.140
50	40	17.002.123	17.002.132	17.002.141
63	50	17.002.124	17.002.133	17.002.142
75	65	17.002.125	17.002.134	17.002.143
90	80	17.002.126	17.002.135	17.002.144

Please state nozzle bore hole size. If no nozzle bore hole is stated, we will supply the nozzle with no bore hole.

INDIVIDUAL PARTS

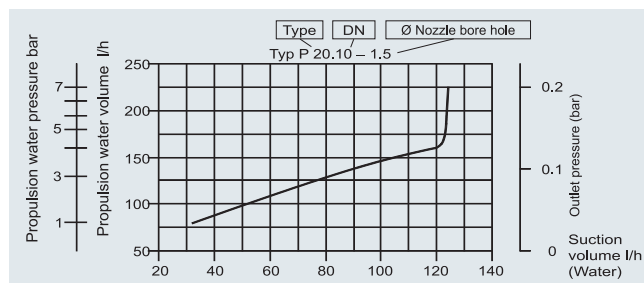
Pos.	Designation
1	Pump body
2	Nozzle
3	Insertion part
4	Union nut
5	O-ring
6	O-ring

From DN 65 available only
with spigot

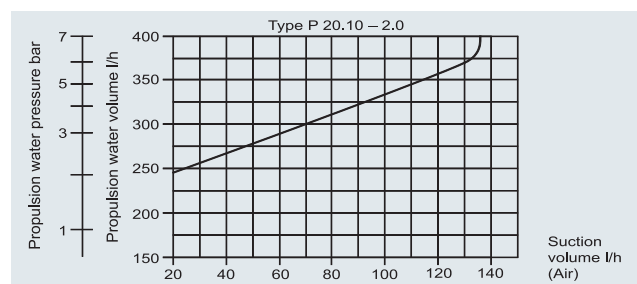
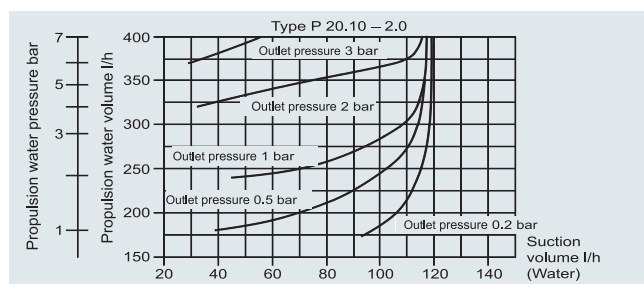
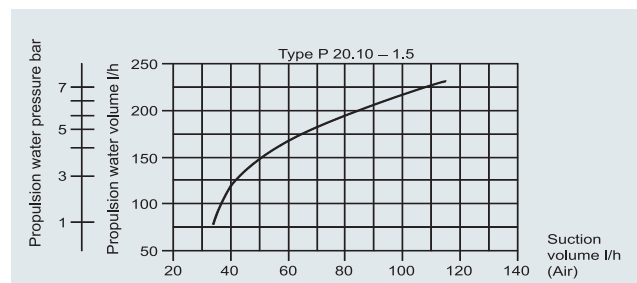


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 10

Suction medium: Water

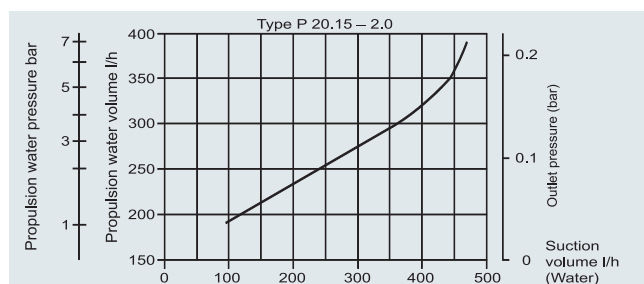


Suction medium: Air

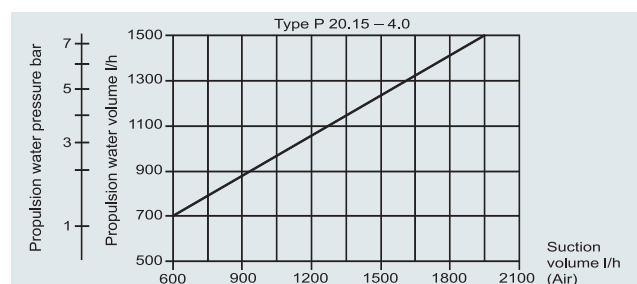
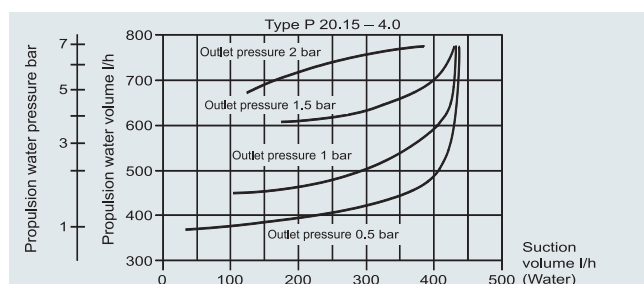
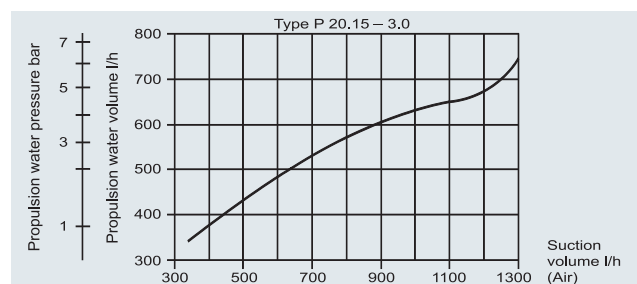
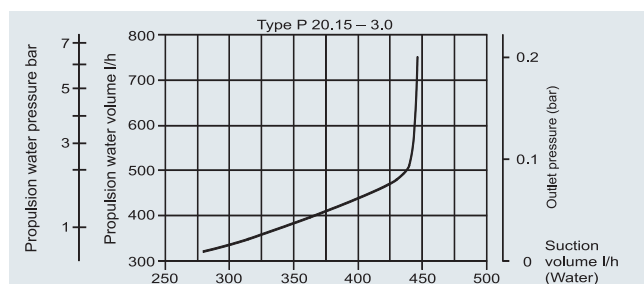
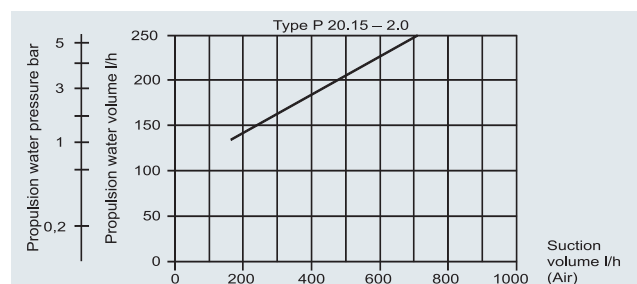


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 15

Suction medium: Water



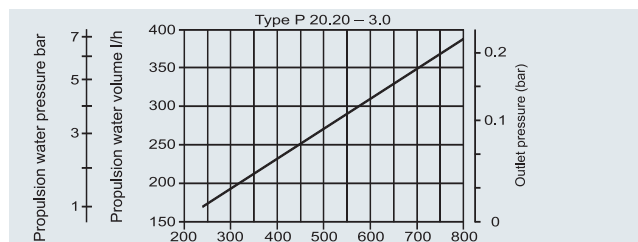
Suction medium: Air



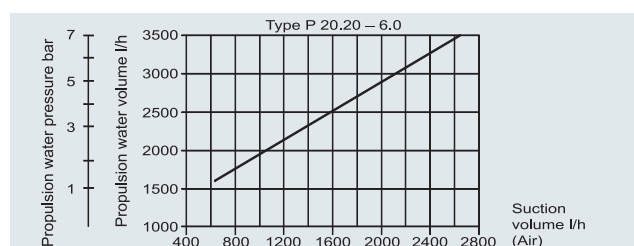
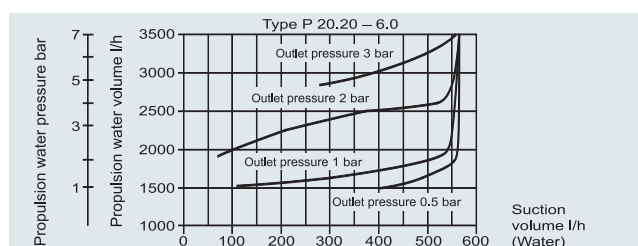
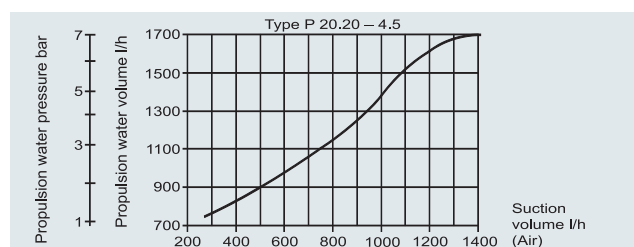
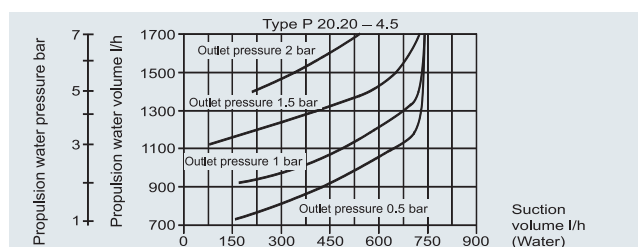
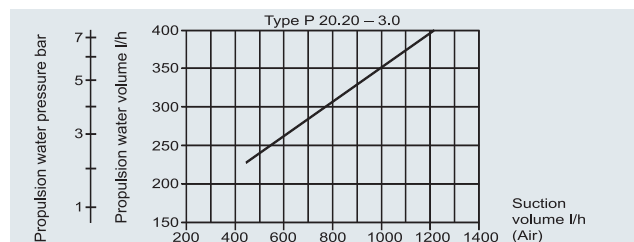
Water jet pump P 20 . DN 10 to DN 80

CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20-20

Suction medium: Water

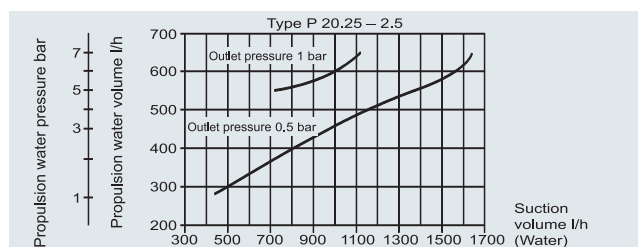


Suction medium: Air

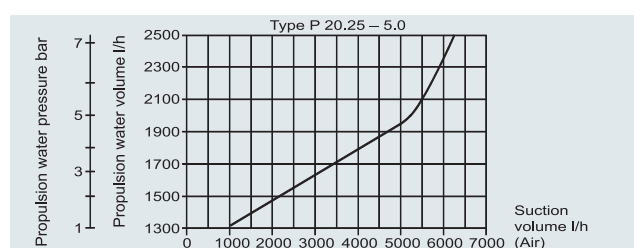
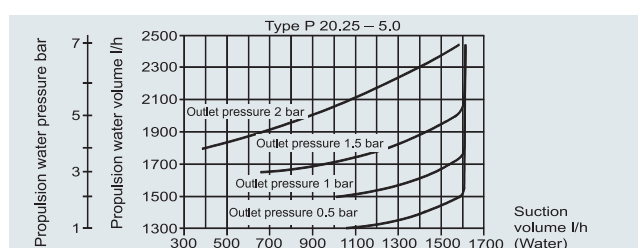
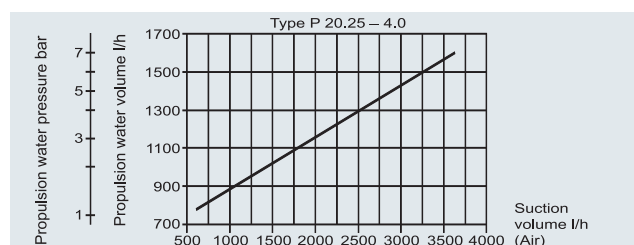
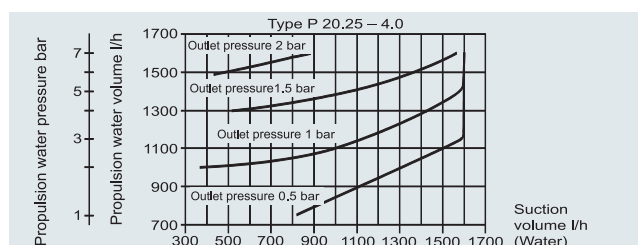
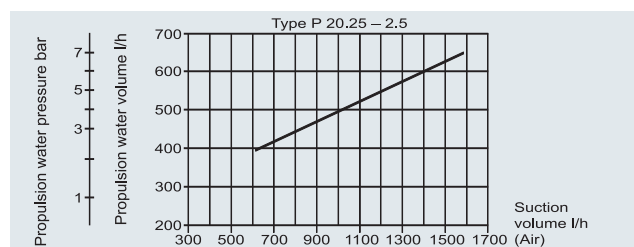


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20-25

Suction medium: Water

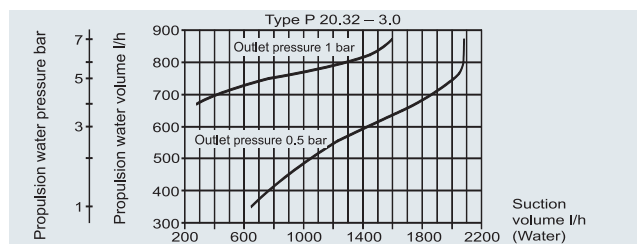


Suction medium: Air

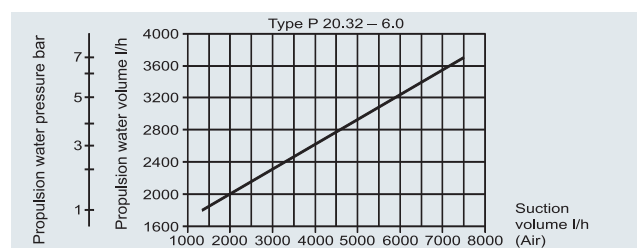
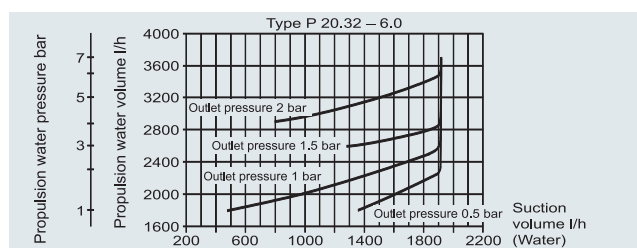
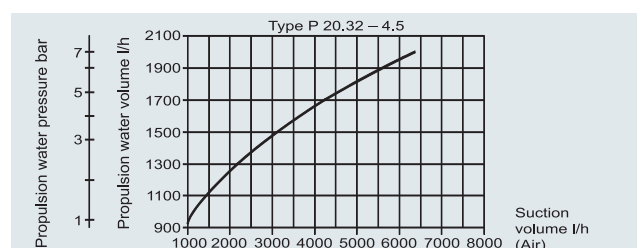
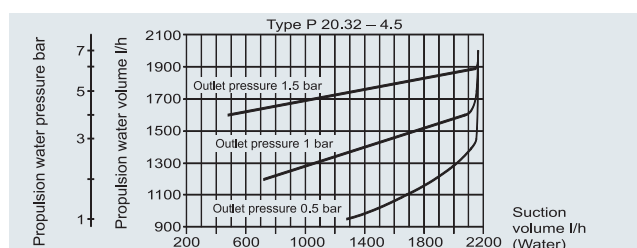
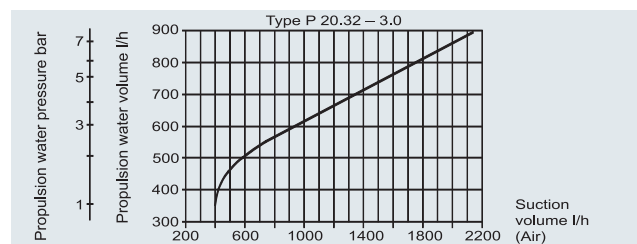


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 32

Suction medium: Water

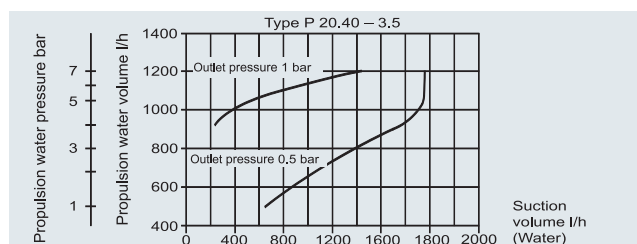


Suction medium: Air

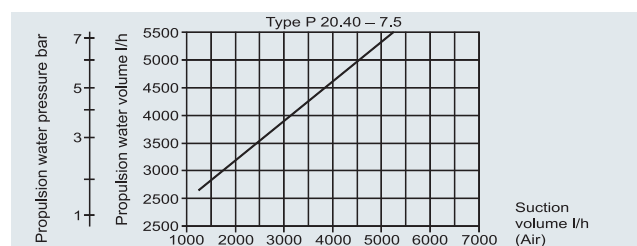
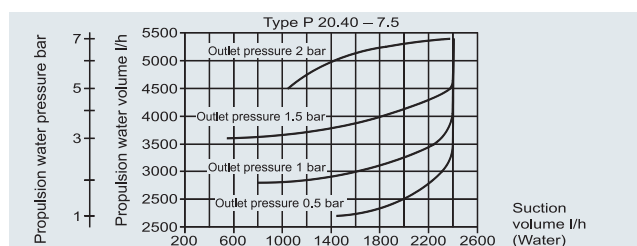
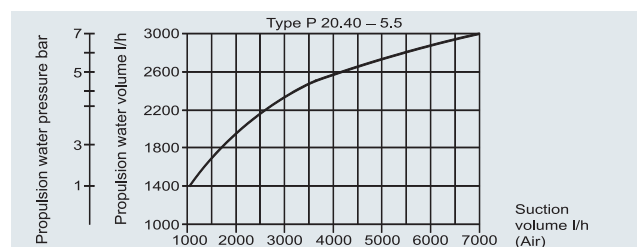
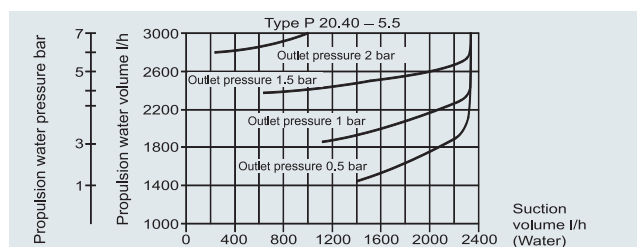
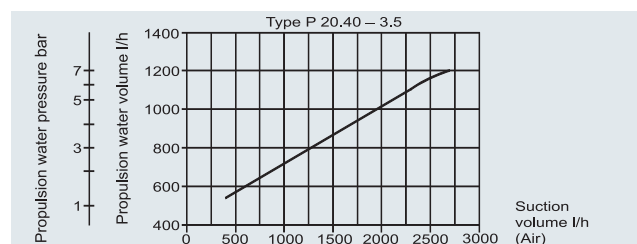


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 40

Suction medium: Water



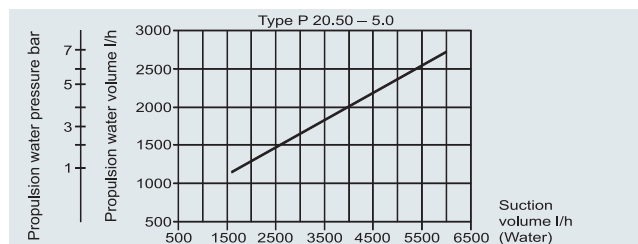
Suction medium: Air



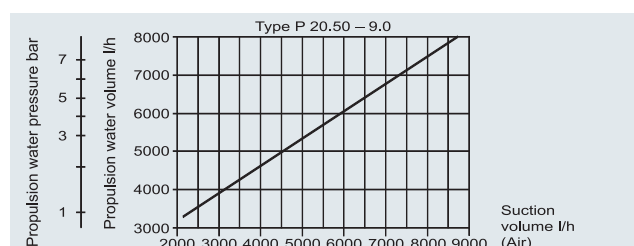
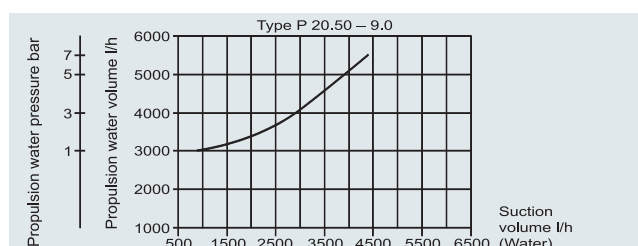
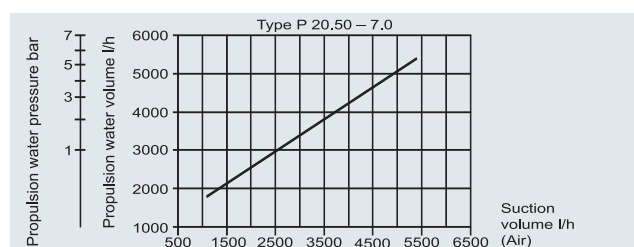
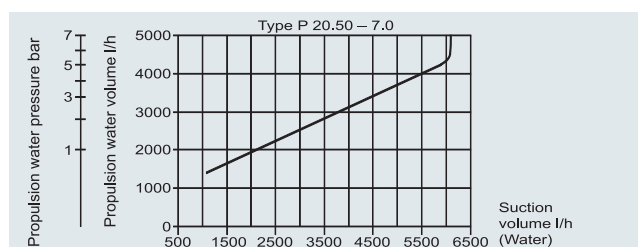
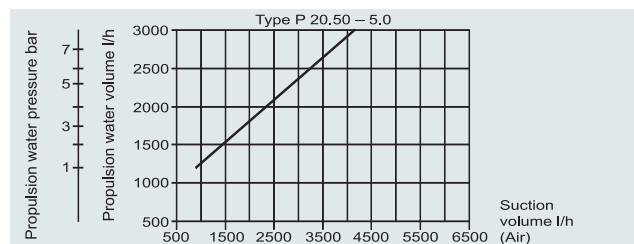
Water jet pump P 20 . DN 10 to DN 80

CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20-50

Suction medium: Water

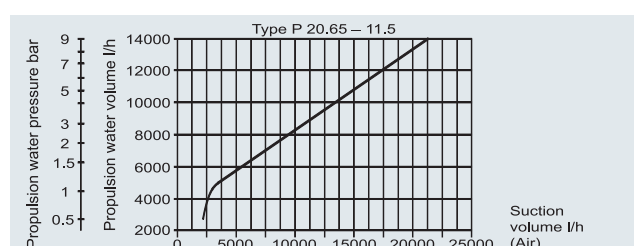
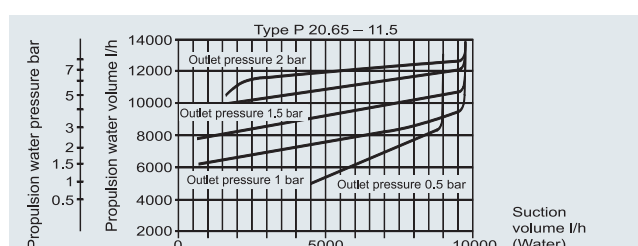
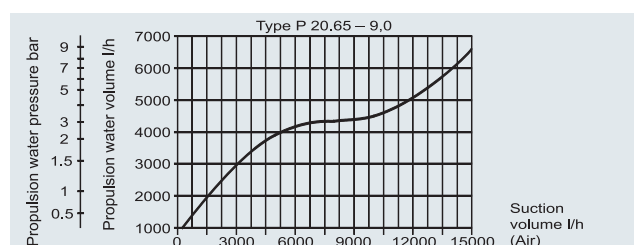
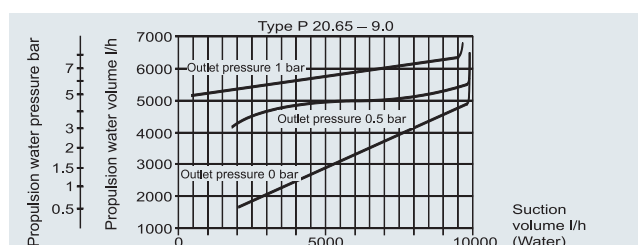
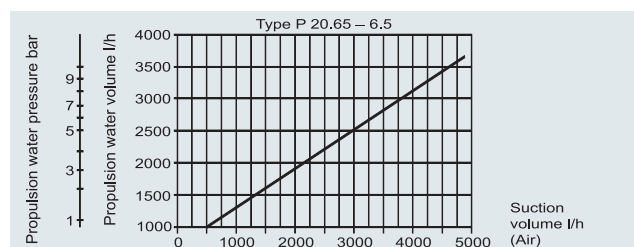
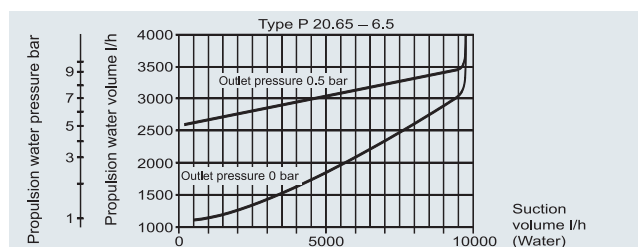


Suction medium: Air



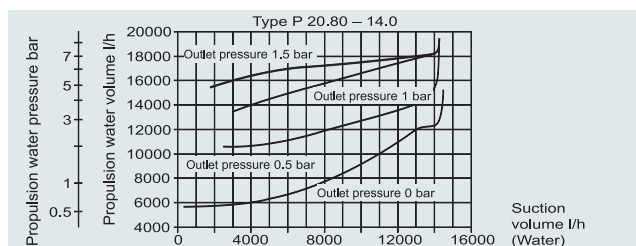
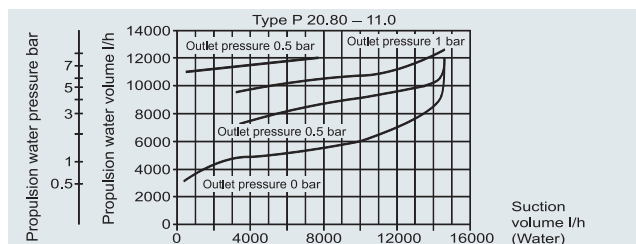
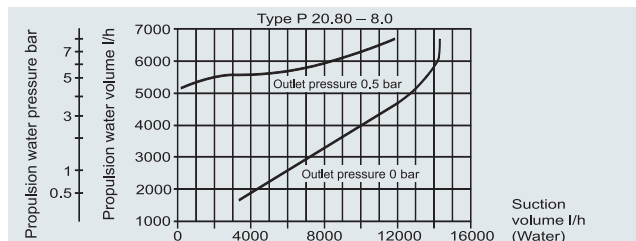
CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20-65

Suction medium: Water

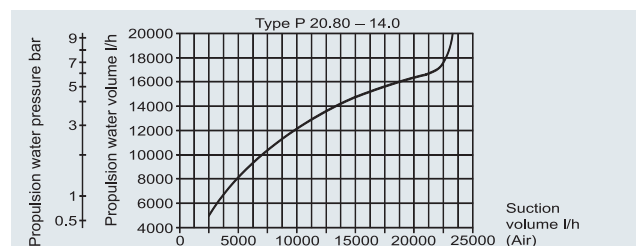
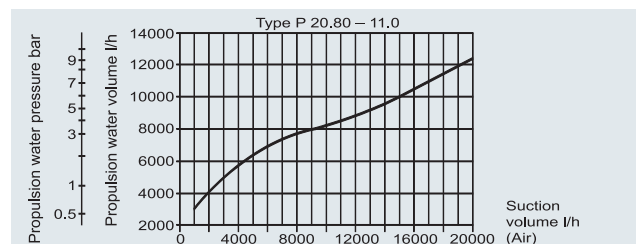
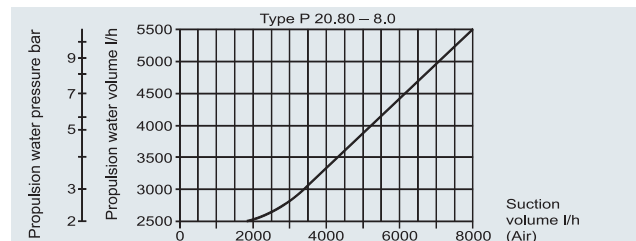


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 80

Suction medium: Water



Suction medium: Air



INSTALLATION INSTRUCTIONS

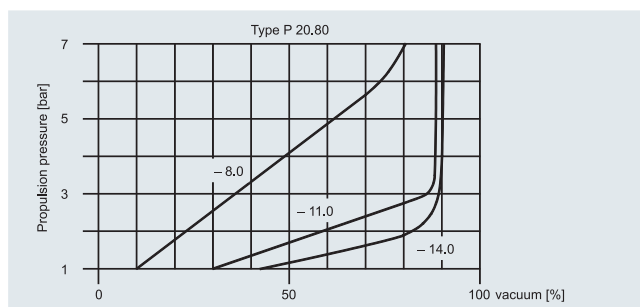
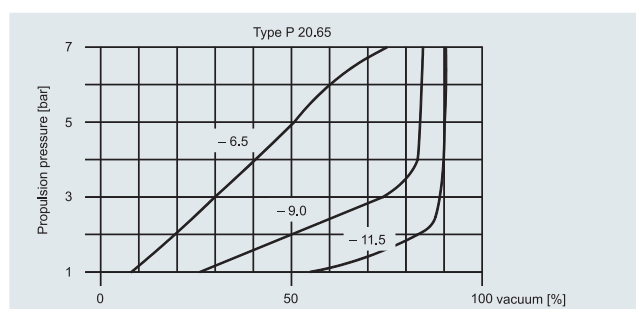
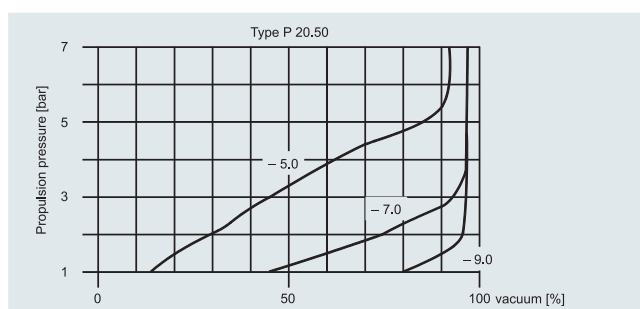
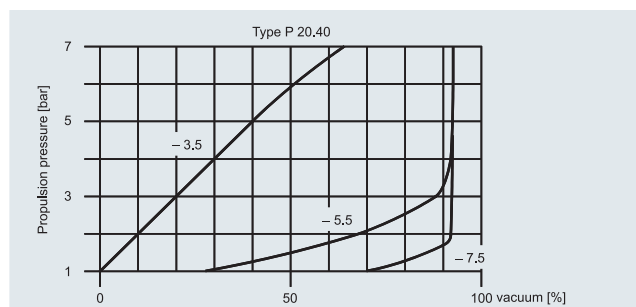
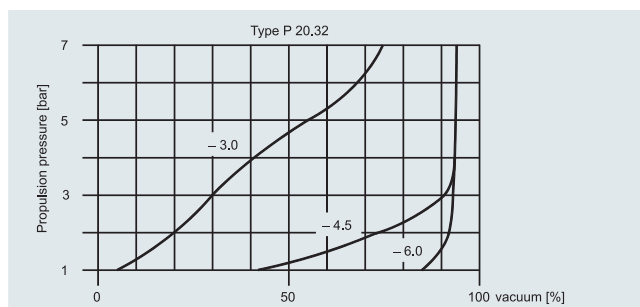
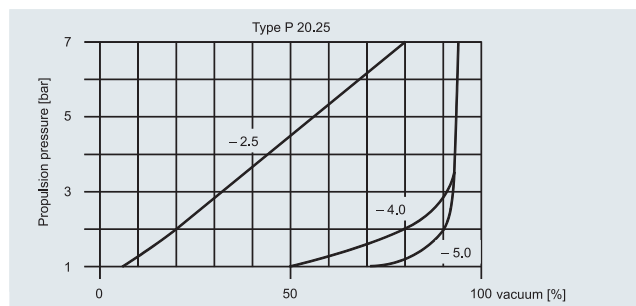
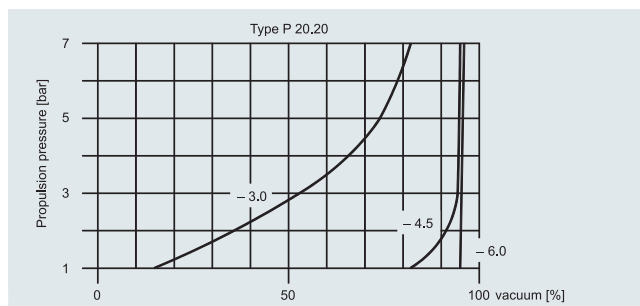
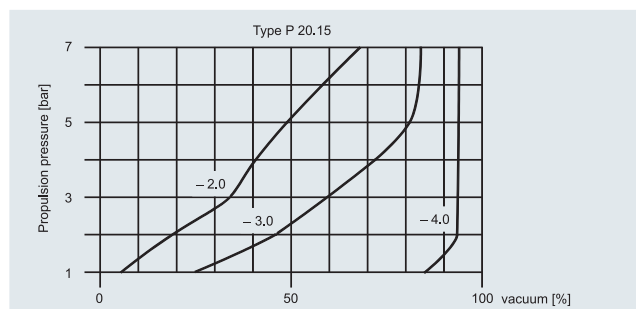
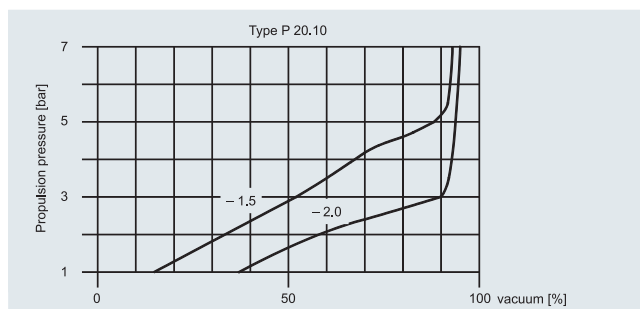
- We recommend installing the water jet pump between two detachable pipe connections. It is advantageous to provide shut-off devices to facilitate any later removal
- A pipe length of at least 5 x DN must be provided upstream and downstream of the pump
- We recommend installing a float-type flow meter in the suction line in order to obtain reference points for the pump's suction capacity
- It is advantageous to install pressure gauges upstream and downstream of the jet pump in order to read off the line pressure and back pressure
- The suction time is significantly reduced by installing a non-return valve in the suction line
- The infeed and drainage lines must have at least the same nominal diameter as the pump
- Precise regulation of the propulsion and suction flow is possible by installing throttle valves

MALFUNCTIONS

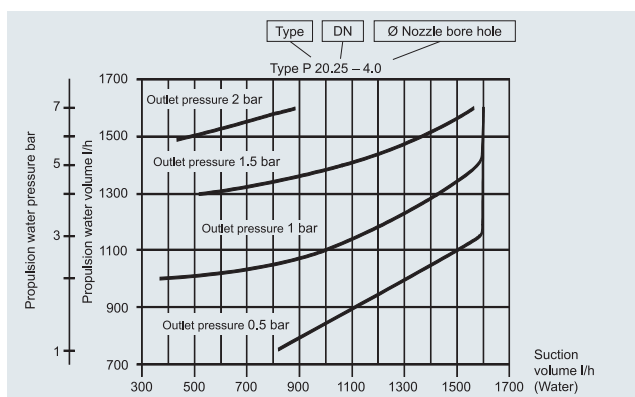
Malfunctions can occur e.g. when the operating water pressure fluctuates or is too low, when the back pressure is too high or when the nozzles are dirty and blocked.

Water jet pump P 20 . DN 10 to DN 80

MAX. ATTAINABLE VACUUM FOR WATER JET PUMPS P20 DN 10 - DN 80



Note: The indications on the characteristic (e.g. 3.0) are the respective diameter of the nozzle bore hole.



(REPLACEMENT) NOZZLE FOR P 20 PVC / PP / PVDF

d	DN	PVC Article No.	PP Article No.	PVDF Article No.
16	10	10.002.581	10.002.582	10.002.583
20	15	10.002.581	10.002.582	10.002.583
25	20	10.002.587	10.002.588	10.002.589
32	25	10.002.590	10.002.591	10.002.592
40	32	10.002.593	10.002.594	10.002.595
50	40	10.002.596	10.002.597	10.002.598
63	50	10.002.599	10.002.600	10.002.601
75	65	10.002.602	10.002.603	10.002.604
90	80	10.002.605	10.002.606	10.002.607

CONFIGURATION OF THE WATER JET PUMP

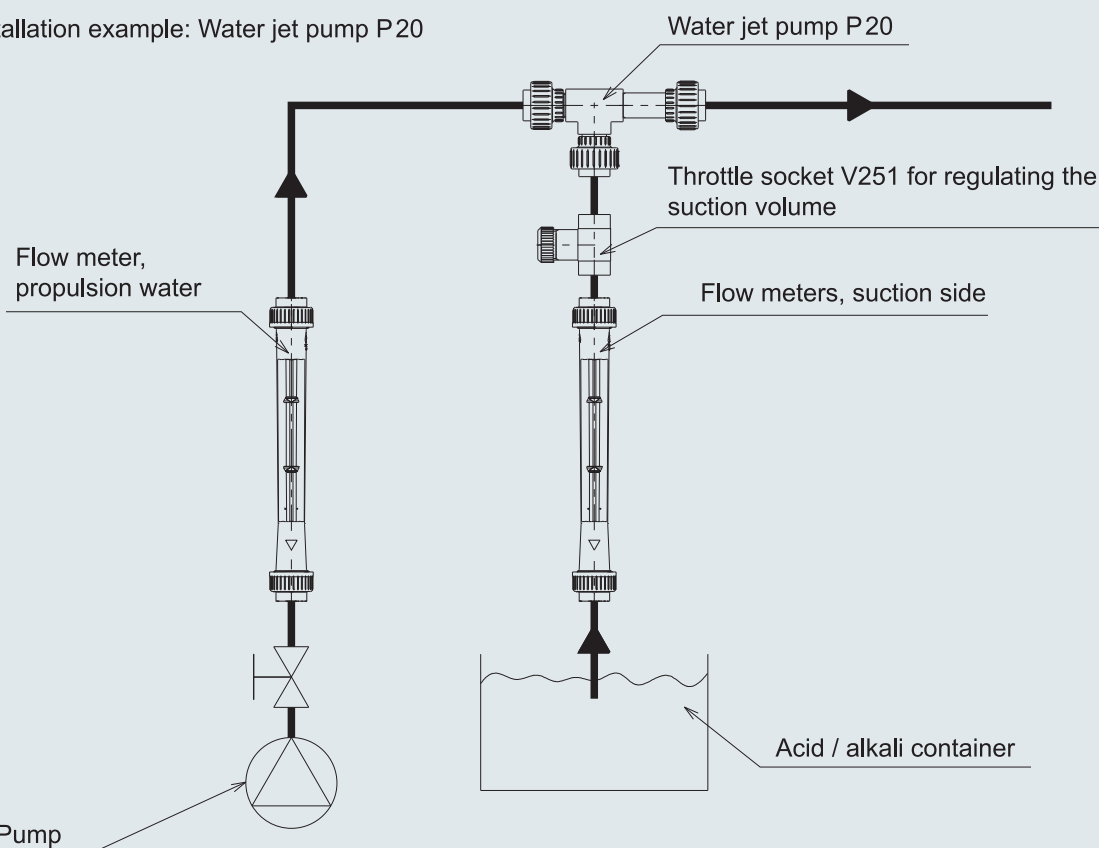
Information required	Example	Data as per diagram
Propulsion water pressure	bar	3 bar
Propulsion water volume	l/h	1,200 l/h
Suction volume	l/h	550 l/h
Suction medium	HCl 30 %	H ₂ O
Back pressure	bar	1 bar

The suction volume must be adjusted to the desired value.

Attention

Do not use a diaphragm valve to set the suction volume because the low pressure can cause the diaphragm to adhere to the base. For this, we recommend using the throttle socket V251.

Installation example: Water jet pump P 20



The technical data is non-binding. It is not to be regarded as representing assured properties or as a guarantee of quality or durability. We reserve the right to make changes. Our general terms of sale apply.

Throttle socket v 251

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions

Throttle socket V 251 . DN 10 to DN 50



V 251 PVDF



V 251 PP



V 251 PVC

USE

Throttle sockets are used where the flow of liquids or gases needs to be slowed in pipelines. A compact design, simple and robust attachment and a good control characteristic guarantee a high level of operational reliability.

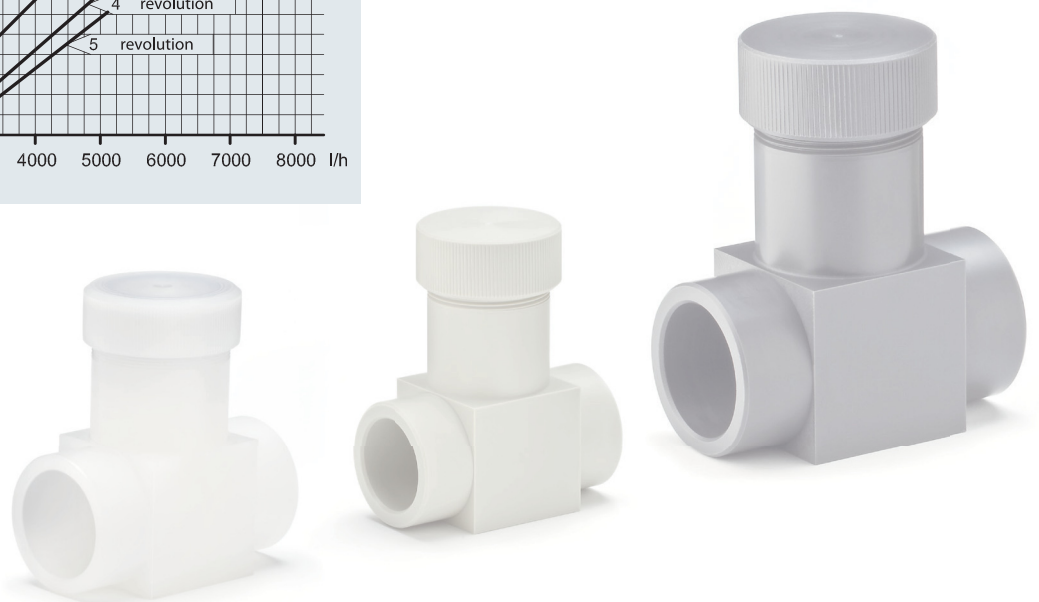
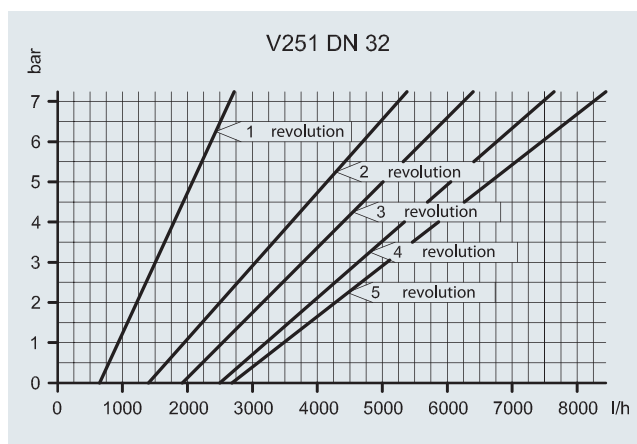
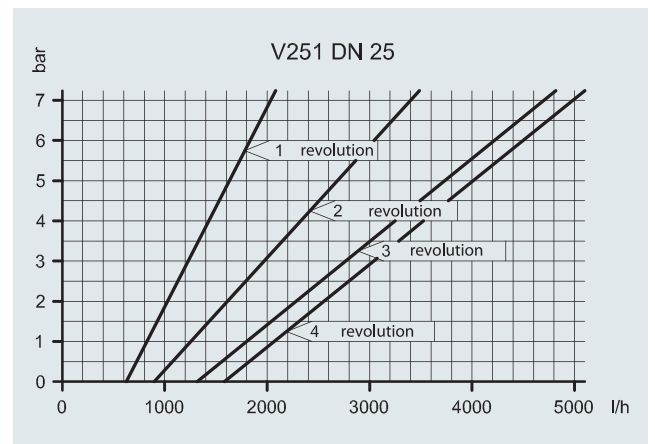
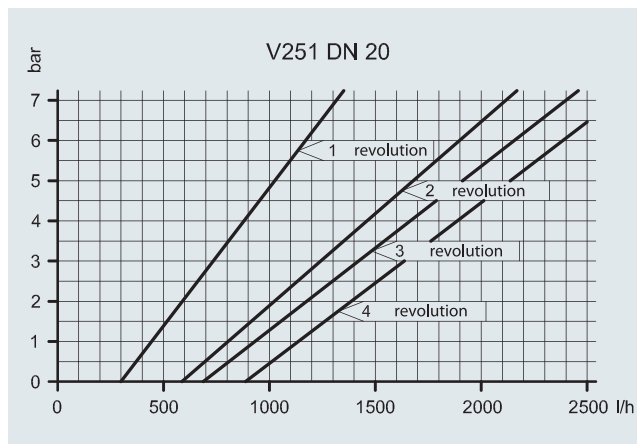
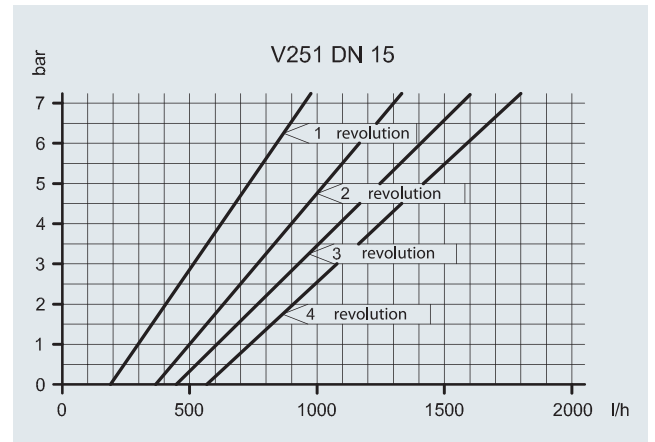
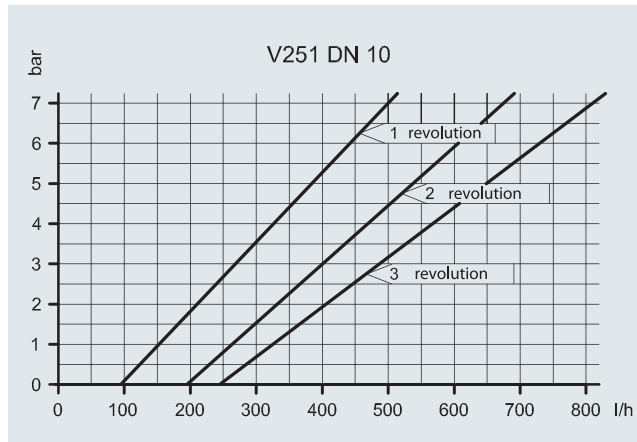
FUNCTION

A spindle with a taper narrows the cross section of the hole in the housing and thereby reduces the volumetric flow to the desired value. The adjustment must be made with a tool (screwdriver or flat material), and thus has the advantage that the set value is largely protected against accidental change.

SPECIAL FEATURES

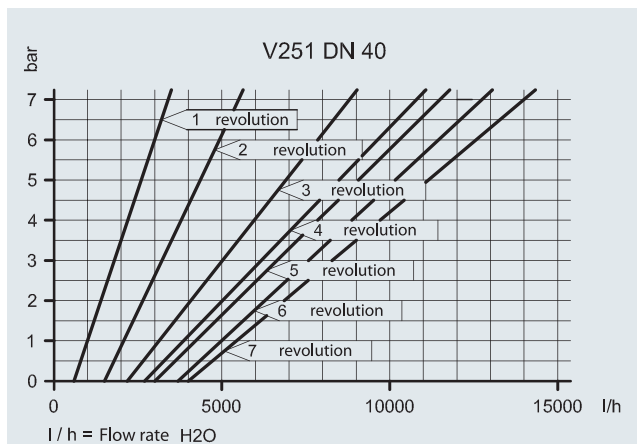
- Good chemical resistance thanks to highly-resistant plastics (PVC, PP, PVDF)
- Largely maintenance-free and can be installed in any position
- High degree of operational reliability thanks to a compact and robust design
- Good control characteristic from 0 to max. quantity

CHARACTERISTIC GRAPHS FOR THROTTLE SOCKET V 251



Throttle socket v 251 . DN 10 to DN 50

CHARACTERISTIC GRAPHS FOR THROTTLE SOCKET V 251



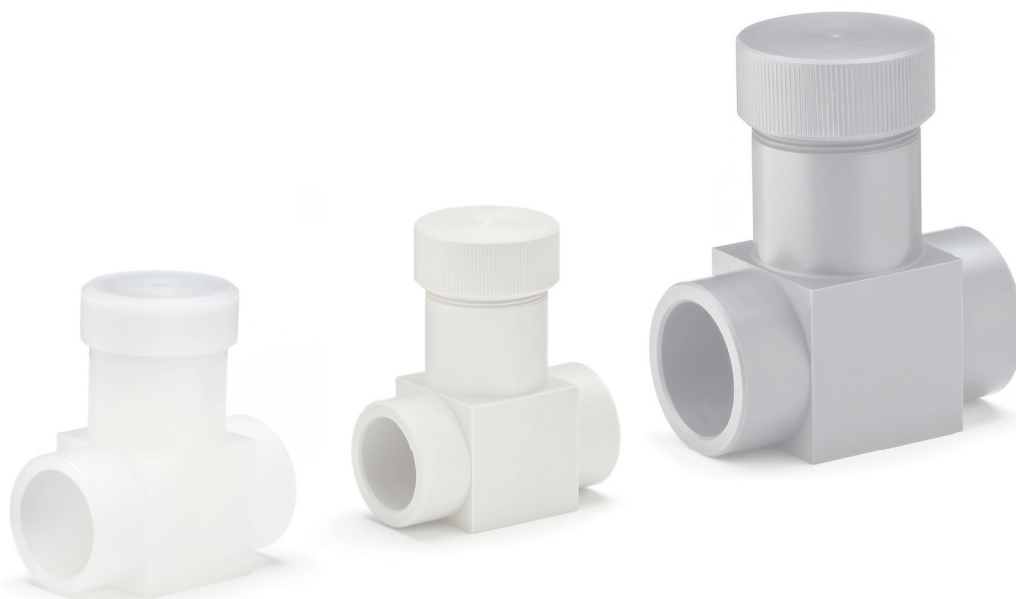
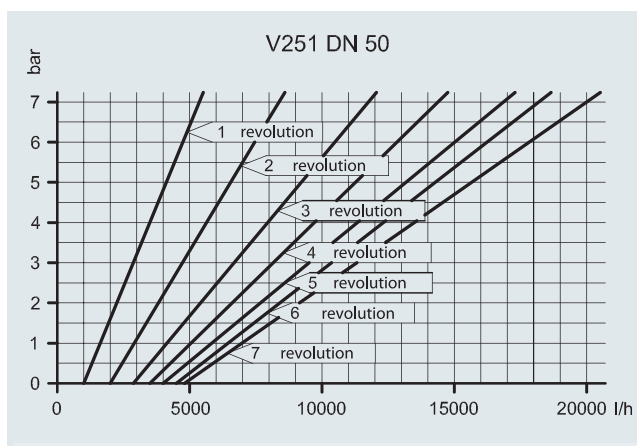
To configure the nominal width, we recommend using the specified values with the throttle socket half open.

Example

Pressure upstream of throttle socket : 3 bar

Desired flow rate : 2,000 l/h

According to the diagram for DN25, a flow rate of 2,000 l/h is obtained by opening the adjustment screw by 2 rotations. The nominal width of DN25 is very suitable for this.

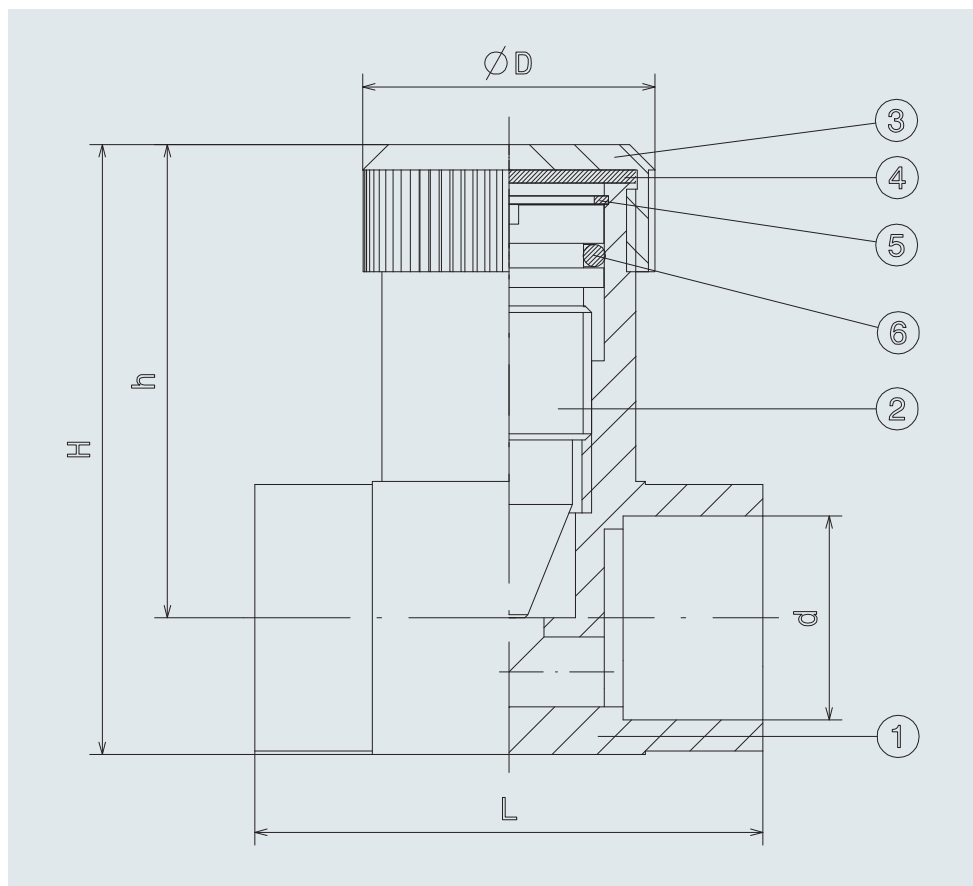


The technical data is non-binding. It is not to be regarded as representing assured properties or as a guarantee of quality or durability. We reserve the right to make changes. Our general terms of sale apply.

INDIVIDUAL PARTS

Pos. Designation

- 1 Housing
- 2 Spindle
- 3 Cap
- 4 Seal
- 5 Circlip
- 6 O-ring



MATERIALS

Housing	Permissible operating temperature	Seal
PVC	0 à + 60 °C	EPDM / FPM
PP	-20 à + 80 °C	EPDM / FPM
PVDF	-20 à + 120 °C	FPM

DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	L	H	h	ø D
16	10	47	57	45	29
20	15	55	66	51	35
25	20	66	80	62,5	40
32	25	80	96	74,5	47
40	32	100	111	86	56
50	40	120	133	101	70
63	50	146	158	118	88

Operating pressure: PN 10 à 20 °C

ARTICLE NUMBERS

d	DN	PVC		PP		PVDF
		EPDM	FPM	EPDM	FPM	FPM
16	10	17.001.305	17.001.070	17.001.312	17.001.071	17.001.072
20	15	17.001.306	17.001.091	17.001.313	17.001.092	17.001.093
25	20	17.001.307	17.001.082	17.001.314	17.001.079	17.001.080
32	25	17.001.308	17.001.068	17.001.315	17.001.067	17.001.066
40	32	17.001.309	17.001.088	17.001.316	17.001.089	17.001.090
50	40	17.001.310	17.001.107	17.001.317	17.001.105	17.001.106
63	50	17.001.311	17.001.101	17.001.318	17.001.099	17.001.100

We reserve the right to make technical changes in the interest of improvement.

Venting and breathe valve v 91 Venting valve v 95

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions



Venting and breathe valve V 91. Venting valve V 95

Venting and breathe valve V91

DN 10 to DN 80



V91 PVDF · V95 PVDF



V91 PP · V95 PP



V91 PVC · V95 PVC

FUNCTION

V91 venting and breathe valves are primarily used where containers and pipelines must be ventilated. The float in the V91 opens the valve when the liquid level drops. When the liquid level rises, the float is raised and is pressed against a seal. The valve is closed.

For perfect functioning, it is important for the venting and breathe valve V91 to be installed vertically with the arrow pointing “up”.

SPECIAL FEATURES

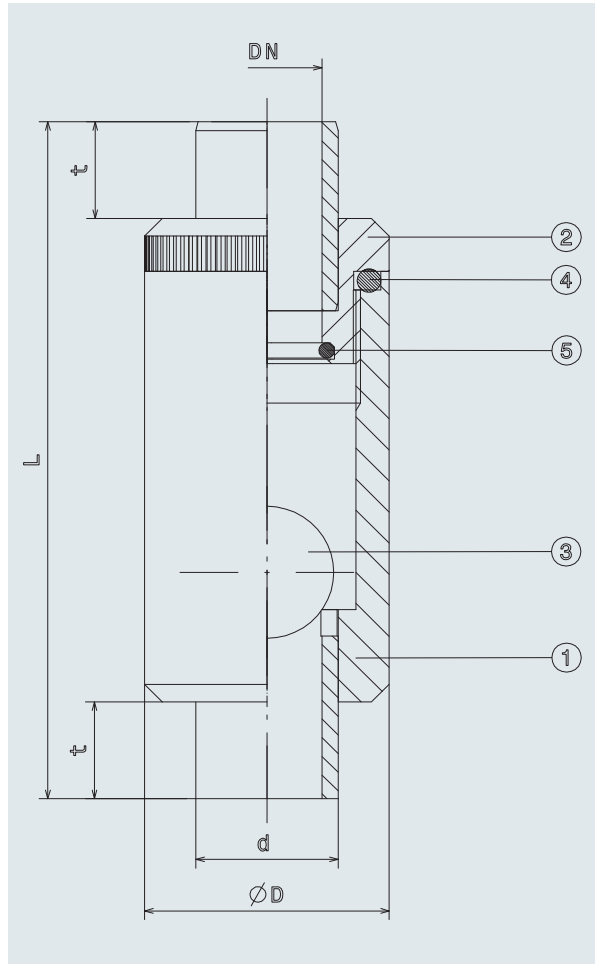
- All parts that come into contact with the medium are made of highly-resistant plastics
- Operation of the valve requires no auxiliary energy
- The valve V91 is largely maintenance-free

MATERIALS

Housing	Permissible operating temperature	Seals	Ball
PVC	0 to +60 °C	FPM	PP
PP	-10 to +80 °C	FPM	PP
PVDF	-20 to +100 °C	FPM	Flotteur PVDF

Operating pressure max. 10 bar at 20 °C

INDIVIDUAL PARTS



Pos. Designation

- 1 Housing
- 2 Screw-in part
- 3 Ball (PVDE Float)
- 4 O-ring
- 5 O-ring

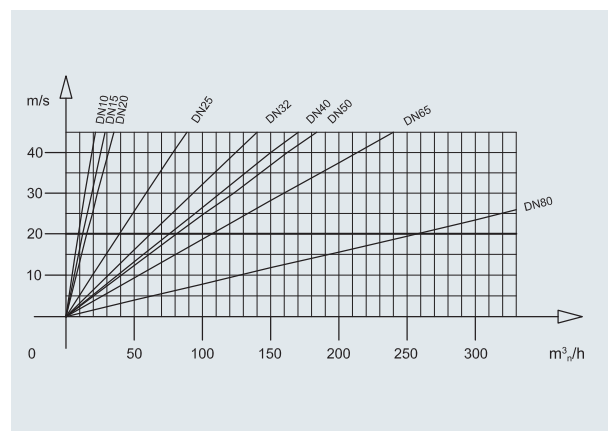
DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	ø D	L	t
16	10	35	114	14
20	15	40	124	16
25	20	45	144	19
32	25	55	154	22
40	32	70	174	26
50	40	80	194	31
63	50	95	224	38
75	65	115	284	44
90	80	150	300	51

ARTICLE NUMBERS

d	DN	PVC with Adhesive spigot	PP with fusion spigot	PVDF with fusion spigot
16	10	17.001.822	17.000.613	17.000.596
20	15	17.000.510	17.000.614	17.000.595
25	20	17.000.513	17.000.615	17.000.594
32	25	17.000.540	17.000.616	17.000.593
40	32	17.000.544	17.000.617	17.000.592
50	40	17.000.546	17.000.618	17.000.591
63	50	17.000.549	17.000.619	17.000.584
75	65	17.000.552	17.000.620	17.000.581
90	80	17.000.621	17.000.623	17.003.563

AIR QUANTITY DIAGRAM



We recommend that you do not exceed a speed of 20 m/s.

Venting and breathe valve V 91. Venting valve V 95

Venting valve V95

DN 10 to DN 80

FUNCTION

Venting valves V95 are primarily used where a closed system (container) must be vented for emptying. The float in the V95 is pressed against the seal assembly by a spring. The vacuum caused by the emptying causes the valve to open and vents the system.

For perfect functioning, it is important for the venting valve V95 to be installed vertically with the arrow pointing “up”.

SPECIAL FEATURES

- All parts coming into contact with the medium are made of highly-resistant plastics
- No auxiliary energy are required in order to operate the valves
- The valve V95 is largely maintenance-free

MATERIALS

Housing	Permissible operating temperature			Seals	Ball
PVC	0 à	+ 60 °C	FPM	PVC	PP
PP	- 10 à	+ 80 °C	FPM	PP	PP
PVDF	- 20 à	+ 100 °C	FPM	PVDF	PVDF flottant

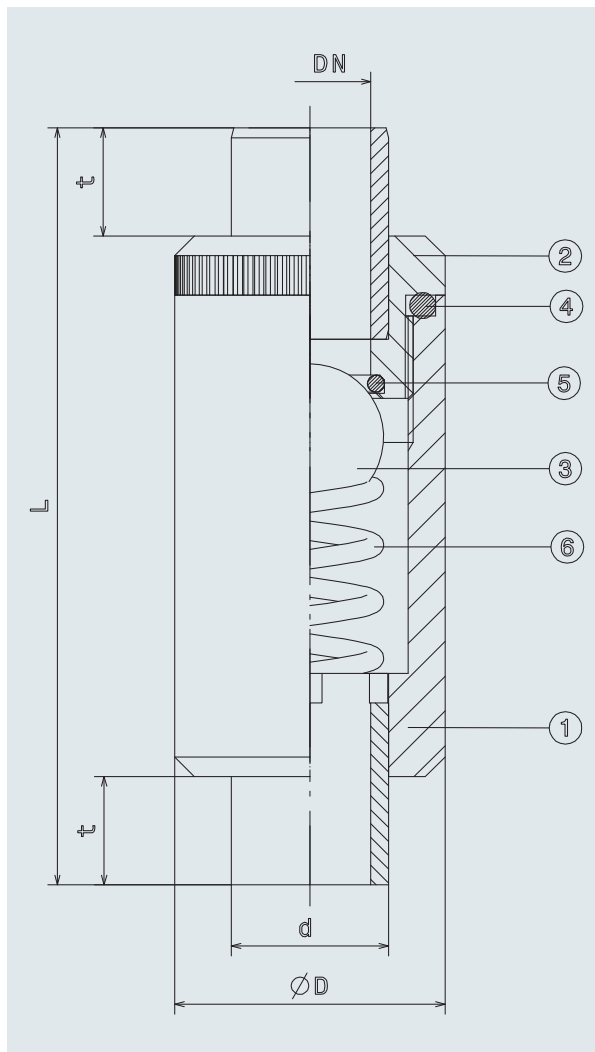
Operating pressure max. 10 bar at 20 °C

The opening pressure of the venting valve V95 cannot be precisely defined, as the plastic spring does not have a constant spring characteristic.

An opening pressure of 0.04-0.13 bar can be assumed as the guideline value, depending on DN. However, these values are non-binding and can vary greatly, depending on the operating conditions and period of operation.



INDIVIDUAL PARTS



Pos. Designation

- 1 Housing
- 2 Screw-in part
- 3 Ball (PVDE Float)
- 4 O-ring
- 5 O-ring
- 6 Spring

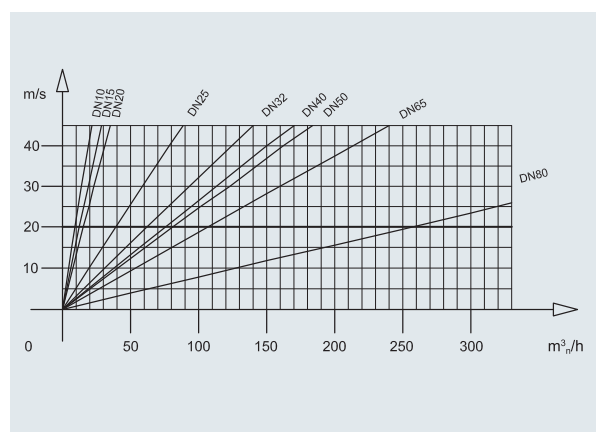
DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	ø D	L	t
16	10	35	114	14
20	15	40	124	16
25	20	45	144	19
32	25	55	154	22
40	32	70	174	26
50	40	80	194	31
63	50	95	224	38
75	65	115	284	44
90	80	150	300	51

ARTICLE NUMBERS

d	DN	PVC with Adhesive spigot	PP with fusion spigot	PVDF with fusion spigot
16	10	17.000.557	17.000.597	17.000.565
20	15	17.000.558	17.000.598	17.000.567
25	20	17.000.559	17.000.599	17.000.569
32	25	17.000.560	17.000.600	17.000.571
40	32	17.000.561	17.000.601	17.000.573
50	40	17.000.562	17.000.602	17.000.576
63	50	17.000.563	17.000.603	17.000.578
75	65	17.000.564	17.000.604	17.000.579
90	80	17.002.159	17.002.161	17.003.564

AIR QUANTITY DIAGRAM



We recommend that you do not exceed a speed of 20 m/s.

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Float valve

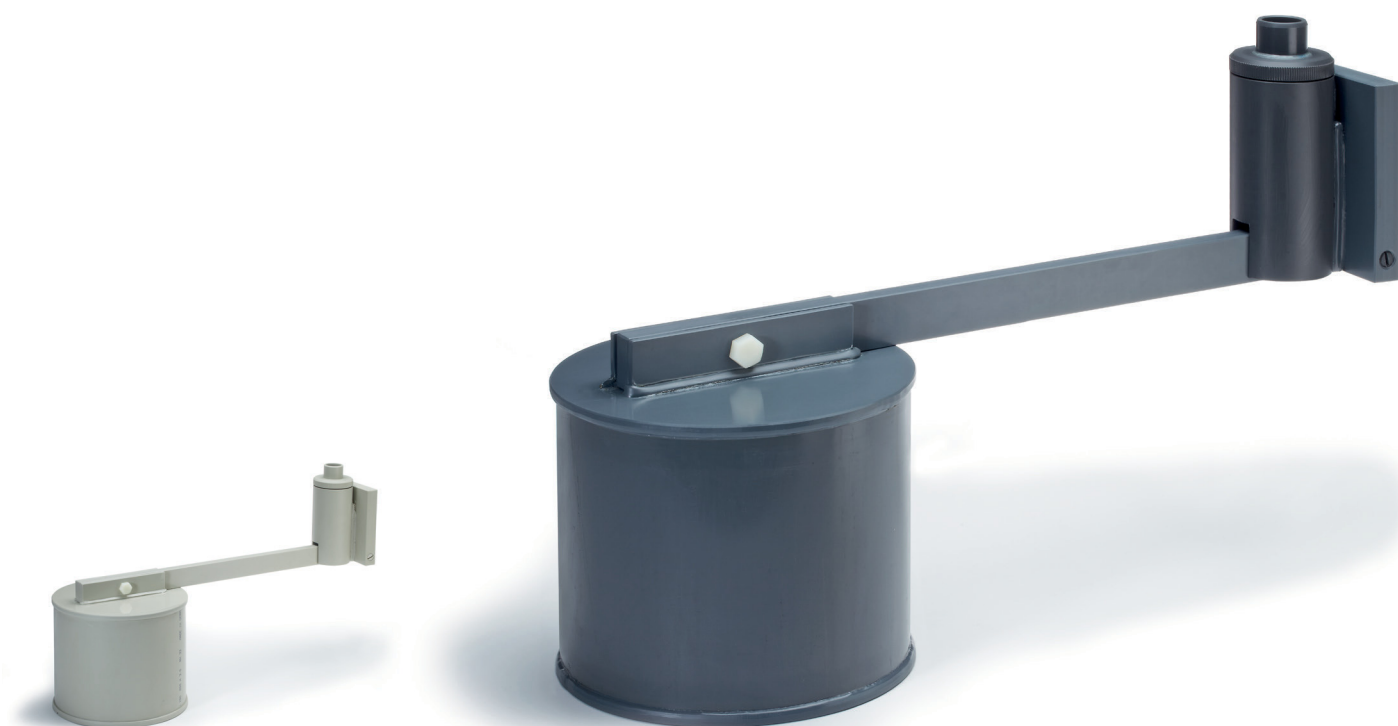
V 140

FACTS | FIGURES | DATA



Thermoplastic Valve Solutions

Float valve V 140 . DN 10 to DN 80



V 140 PP

V 140 PVC

USE

V140 float valves are used for the purpose of automatic infeed control for tanks and containers. This enables filling levels to be kept constant.

FUNCTION

The float valve V140 is fitted to the container wall according to the desired filling level and is connected to the infeed line. As the liquid level rises, the float is raised and closes the valve via the lever arm. If the liquid level falls, the infeed is opened and the medium can flow in until the appropriate filling level is reached again.

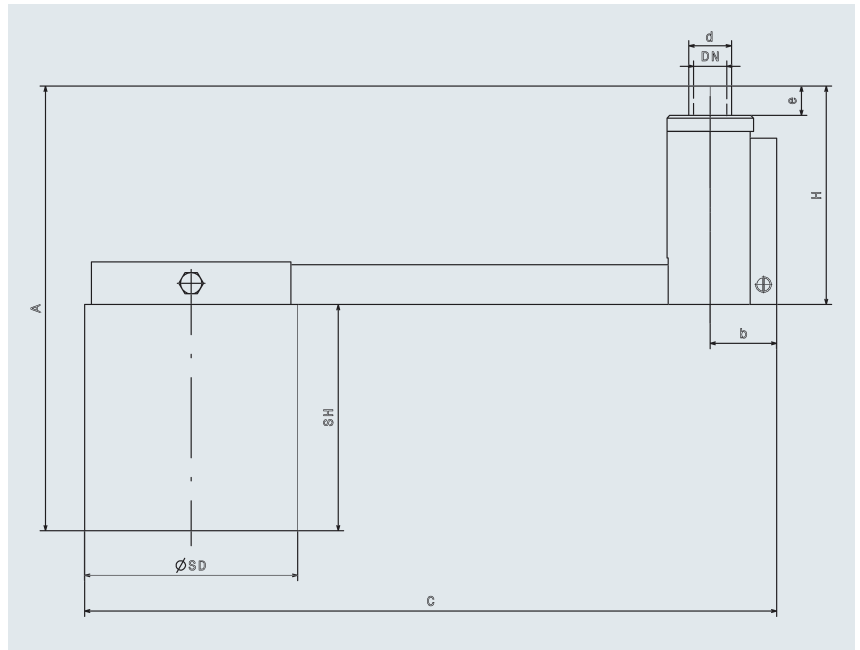
SPECIAL FEATURES

- Optimum level control without auxiliary energy
- Robust, low-maintenance design
- Reliable in service thanks to integral seat seal
- Standard lever ratio: 1:10

If desired, 1:7 for restricted installation conditions

TECHNICAL DATA

Material	PVC, PP
Sealing element	EPDM, FPM (Viton)
Bearing axle	1,4571
Perm. operating pressure	max. 6 bar at 20 °C
Installation position	vertical
Connection	Adhesive and fusion spigots. Available on request with screw connections or flanges.



DIMENSIONS IN MM (GUIDELINE VALUES)

d	DN	ø D	H	a	b	c Lever 1:10	c Lever 1:7	e	A	ø SD	SH
16	10	45	120	80	36	380	305	14	270	125	130
20	15	45	120	80	36	380	305	16	270	125	130
25	20	65	160	110	50	530	430	19	340	160	170
32	25	65	165	110	50	530	430	22	345	160	170
40	32	90	210	130	65	720	575	26	440	225	210
50	40	90	215	130	65	720	575	31	445	225	210
63	50	130	255	160	86	975	775	38	595	315	290
75	65	130	260	160	86	975	775	44	600	315	290
90	80	150	290	180	101	1,140	905	51	640	355	340

ARTICLE NUMBERS

d	DN	PVC with adhesive spigot		PP with fusion spigot	
		EPDM	FPM	EPDM	FPM
16	10	10.001.291	10.001.375	10.001.300	10.001.384
20	15	10.001.292	10.001.376	10.001.301	10.001.385
25	20	10.001.293	10.001.377	10.001.302	10.001.386
32	25	10.001.294	10.001.378	10.001.303	10.001.387
40	32	10.001.295	10.001.379	10.001.304	10.001.388
50	40	10.001.296	10.001.380	10.001.305	10.001.389
63	50	10.001.297	10.001.381	10.001.306	10.001.390
75	65	10.001.298	10.001.382	10.001.307	10.001.391
90	80	10.001.299	10.001.383	10.001.308	10.001.392

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Technical Appendix

FACTS | FIGURES | DATA

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Technical Appendix



Thermoplastic Valve Solutions

Technical Appendix

FLOW RATES IN PIPELINES

l/h Flow rate at a speed V =

Nominal width		Area of nominal width mm ²	3.0 m/s	2.5 m/s l/h	2.0 m/s l/min		1.8 m/s	1.6 m/s	1.4 m/s	1.2 m/s	1.0 m/s	0.5 m/s
mm	inches											
10	1/8	78.5	848	706	565	9.4	509	452	396	339	283	141
15	1/2	176.6	1,901	1,584	1,267	21.1	1,140	1,014	887	760	634	317
20	3/4	314.0	3,391	2,826	2,261	37.7	2,035	1,809	1,583	1,357	1,130	565
25	1	490.6	5,292	4,410	3,528	58.8	3,175	2,822	2,470	2,117	1,764	882
32	1 1/4	803.8	8,672	7,227	5,782	96.4	5,203	4,625	4,047	3,469	2,891	1,445
40	1 1/2	1,256.0	13,565	11,304	9,043	150.7	8,139	7,235	6,330	5,426	4,522	2,261
50	2	1,962.5	21,190	17,658	14,126	235.4	12,714	11,301	9,888	8,476	7,063	3,532
65	2 1/2	3,316.6	35,813	29,844	23,875	397.9	21,488	19,100	16,713	14,325	11,938	5,969
80	3	5,024.0	54,259	45,216	36,173	602.9	32,556	28,938	25,321	21,704	18,086	9,043
100	4	7,850.0	84,780	70,650	56,520	942.0	50,868	45,216	39,564	33,912	28,260	14,130
125	5	12,265.6	132,462	110,385	88,308	1,471.8	79,477	70,646	61,816	52,985	44,154	22,077
150	6	17,662.5	190,750	158,958	127,166	2,119.4	114,450	107,733	89,017	76,300	63,583	31,792

Q = Flow rate (m³/h)

F = Surface area (of nominal width m²)

v = Speed (m/s)

$$Q = F \cdot 3,600 \cdot V = \text{m}^3/\text{h}$$

$$F = \frac{Q}{V \cdot 3,600} = \text{m}^2$$

$$V = \frac{Q}{F \cdot 3,600} = \text{m/s}$$

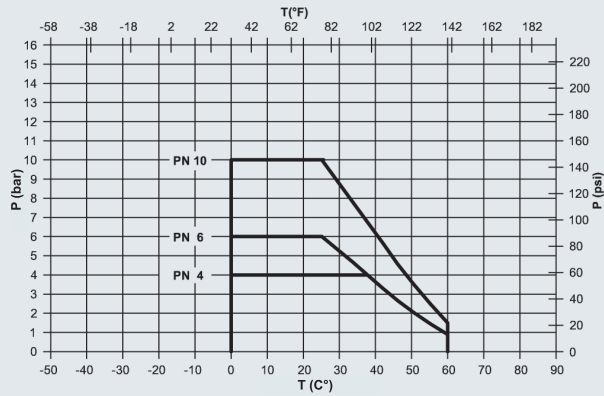
OBSERVATIONS

This table can be used to determine the nominal width of our valves. We recommend that a speed of 2.0 m/s is not be exceeded.

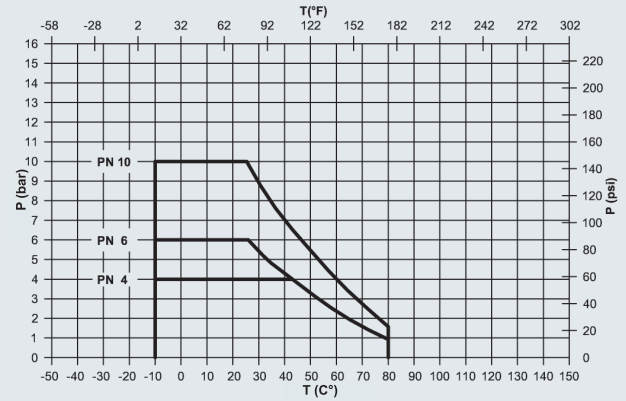
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PRESSURE/TEMPERATURE GRAPHS

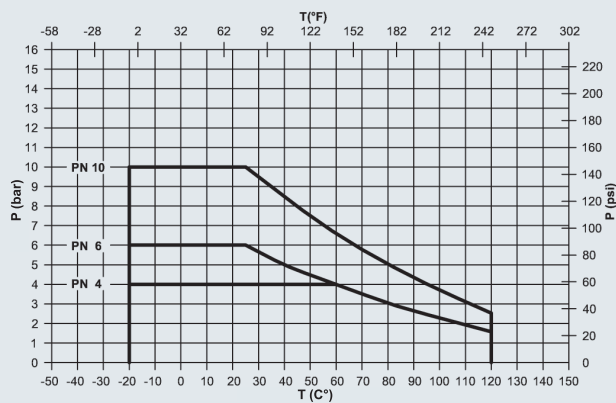
PVC-U



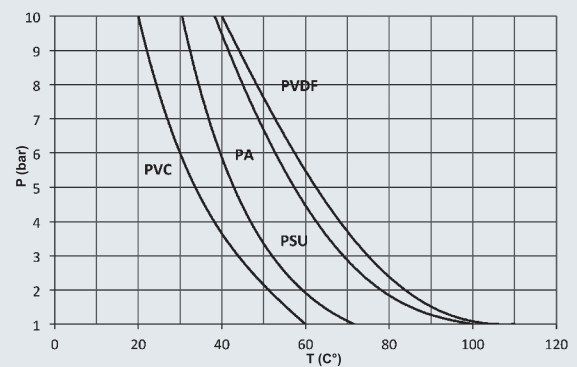
PP-H



PVDF



flow meter



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Technical Appendix

TECHNICAL MATERIAL GUIDELINE VALUES

Properties of the raw materials ¹⁾	Testing methods DIN	ISO	ASTM	Unit	PVC	PP	PVDF
1. General properties							
1. Density	53479	1183	D 792	g/cm ³	1.36	0.91	1.77
2. Melt index MFI 190/5	53735	292	D 1238	g/10 min	–	0.5	–
3. Water absorption	53495	62	D 570	%	0.2	0.01	< 0.04
4. Chemical resistance	53476	175	D 543	–	DIN 8061 supp. sheet. 1	DIN 8078 supp. sheet. 1	–
5. Continuous service temperature							
upper limit range	–	–	–	°C	+60	+100	+150
lower limit range	–	–	–	°C	-15	+5	-30
2. Mechanical properties							
1. Yield stress	53455	527	D 638	N/mm ²	55	41	50
2. Yield strain	53455	527	D 638	%	3	11	9
3. Tear strength	53455	527	D 638	N/mm ²	30	36	43
4. Elongation at break	53455	527	D 638	%	33	> 100	80
5. Impact strength	53453	179	–	kJ/mm ² J/m	o. B. –	o. B. –	– 2,000
6. Notched impact strength	53453	179/180	D 256 (Izod)	kJ/mm ² l/m	3 –	8 –	– 160
7. Indentation hardness/Rockwell	53456	2039	–	N/mm ²	120	75	80
8. Bending strength	53452	178	D 790	N/mm ²	90	35	80
9. Modulus of elasticity	53457	527	D 638	N/mm ²	3,000	1,350	2,000
3. Thermal properties							
1. Vicat distortion temp. VST/B/50	53460	306	D 1525	°C	75	95	140
VST/A/50				°C	–	–	–
2. Dimensional stability temp. HDT/B	53461	75	D 648	°C	72	88	145
HDT/A				°C	–	–	–
3. Coefficient of linear thermal expansion	53752	–	D 696	K-1-10 ⁻⁴	0.8	1.5	1.5
4. Thermal conductivity at 20 °C	52612	–	C177	W/(m·K)	0.14	0.22	0.13
4. Electrical properties							
1. Specific volume resistance	53482	–	D 257	Ohm-cm	> 10 ¹⁵	> 10 ¹⁶	> 10 ¹³
2. Surface resistance	53482	–	D 257	Ohm	10 ¹³	> 10 ¹³	> 10 ¹²
3. Dielectric coefficient at 1 MHz	53483	–	D 150	–	3	2.3	7.25
4. Dielectric loss factor at 1 MHz	53483	–	D 150	–	0.01	0.0002	0.18
5. Deformation							
1. Fusion temperature of the heating element	–	–	–	°C	220	200	230
2. Forming temperature with warm air	–	–	–	°C	130	170	180
6. Other details							
1. Adhesion capability	–	–	–	–	very good	limited	limited
2. Physiologically safe	BGA	–	–	–	yes	yes	–
FDA	–	–	–	–	yes	yes	yes
3. Friction coefficient	53375	–	D 1894	–	0.6	0.3	0.34
4. Fire performance a)	4102 Part 1	–	–	–	B 1 flame retardant	B 2 normal flammability	B 1 flame retardant
b)	VDE 0304 Part 3	IEC 707	–	–	FVo	FV2	FVo
c)	–	–	(UL94)	–	V-o	HB	V-o
d)	–	(CSTB)	–	–	M2	M4	M1

1) These figures were derived by experts. They can thus be regarded as applicable to a high degree, without being binding for each application case. On the finished product, some of these properties may deviate from these values, particularly since these values were derived on the basis of the raw materials.

SAFI

26770 TAULIGNAN

FRANCE

Tél. +33 (0) 4 75 53 56 29

Fax +33 (0) 4 75 53 62 78

www.safi-valves.com

info@safi-valves.com

SAFI FÁBRICA DE VÁLVULAS

C/ Carboners, 35

Pol. Ind. La Cometa

43700 EL VENDRELL (Tarragona)

ESPAÑA

Tel. +34 977 665 147

Fax +34 977 664 989

info@safi-valvulas.com

www.safi-valvulas.com

SAFI AMÉRICA

Las Garzas Trade Center

Las Garzas #950, galpón B

QUILICURA SANTIAGO

CHILE

Fono +56 2 2510 3500

Fax +56 2 2510 3507

info@safi-america.com

www.safi-america.com

www.safi-valves.com

